Safety Maintenance

AMERICA'S PIONEER INDUSTRIAL SAFETY MAGAZINE • JULY, 1960 • 50¢
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(For details, use Key # T-1 on card on page 1)

LOSS STOPPERS

The bulletins and catalogs reviewed below are offered by the Reader Service Department of *SAFETY MAINTENANCE*. To obtain copies without cost or obligation, write in the key numbers on the Reader's Inquiry Card.

INDUSTRIAL HYGIENE

Resuscitators and Accessories ... 347
Nat'l. Cylinder Gas Div., Chemetron Corp. Revised, well illustrated 4-page brochure describes various models of emergency breathing equipment available for rescue work and ambulance and hospital use. Also explains how units can serve as resuscitators, inhalators or aspirators, and lists accessories available.

Unit Air Filters 348
American Air Filter Co. Colorful illustrated 11-page bulletin describes construction and application of permanent washable unit air filters. Discussed are a high capacity, low resistance unit; a heavy-duty metal filter; aluminum filter; spray booth filter; and several units for special applications. Bulletin includes charts, arrestance-resistance curves, engineering data and installation specifications.

Radiation Detection Instruments . 349
Gelman Instrument Co. Short, illustrated bulletin describes three devices of interest to personnel working with or near radioisotopes. One is a shirt pocket alarm; the others are survey meters. All are transistorized battery operated units.

Simulated Accident Victim 350
Alderson Research Laboratories, Inc. A vividly illustrated 17-page catalog describing manikins and make-up materials used to impart an air of realism to first aid training and to better prepare rescue workers for the real thing.

Protective Skin Creams 351
Mine Safety Appliances. 4-page bulletin details the features of three barrier creams for water soluble, water insoluble and diverse soluble and insoluble irritants. Under each cream are listed the materials which it protects against. All three creams can be removed with soap and water.

PERSONAL PROTECTIVE EQUIPMENT

Safety Clothing 352
Advance Glove Mfg. Co. This 18-page catalog provides descriptions and ample illustrations of the company's line of protective apparel. Gloves, aprons, footwear and other items are covered in the booklet. Of special interest is a chart rating three different kinds of gloves for chemical usage.

Safety Clamp for High Climbing . 353
Meyer Machine, Inc. Bulletin on safety device for construction workers, tower personnel, etc., includes instruction sheet and diagrams of installation for a structural tower and for a tubular tower.

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FIRE PROTECTION

Dacron Fire Hose 354
E. I. Du Pont De Nemours & Co., Textile Fibers Dept. 11-page booklet discusses the properties of fire hose jacketed 100% with Dacron. Material is compared with other types of jackets in abrasion and chemical resistance tests. Other factors, such as weight, strength and water absorption, are also considered.

Fire and Smoke Alarm 355
Pyrotronics Div., Baker Industries, Inc. New literature describes the components and operational principles of fire and smoke detection system. Includes performance data on tests of comparison with thermostats. Also includes typical specs for protection of ventilating and air conditioning systems.

Marine Dock Protection 356
National Foam System, Inc. 12-page guide book offers technical information on means of combatting dock fires. Covers use of portable extinguishers, sprinkler systems, methods of using carbon dioxide, dry chemicals, foam, etc. Discusses three techniques of foam application. Schematic drawings included.

MATERIALS HANDLING

Lift Truck Safety Kit 357
Towmotor Corp. Operator's guide outlines basic operating data, shows proper handling techniques for lifting, transporting and stacking various types of loads. Tells how to avoid costly accidents and personnel injuries. Kit also includes four safety cartoons applicable to lift truck operators.

Case History of A Warehouseman..358
Lewis-Shepard Products, Inc. How a major public warehouser handles a variety of materials, ranging from groceries to stoves and refrigerators, totaling over 50 million pounds a year is described in this 2-color 4-page bulletin. Selection and placement of handling equipment plus basic operation of warehoused material resulted in a gain of 82,500 cubic feet of space.

Handling Equipment Catalog 359
Palmer-Shile Co. 12-page catalog describes and illustrates the variety of plant and warehouse handling equipment manufactured by this company. Items include bins, dump boxes, utility shelves, trucks, drum lifters, barrel and box grabs, slings.

PLANT MAINTENANCE

Rust Remover 360
Rusticide Products Co. New folder describes how Rust-I-Cide saves labor and avoids replacement by removing rust and

(Continued on the next page)

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JULY, 1960 **Please send me the following free data**

Free Bulletins (Cont'd)

conditioning metal surfaces of various types of machinery and equipment.

Preventive Maintenance & Cost Control 361
International Business Machines Corp. Primary purpose of the application described in this 20-page manual is to minimize the cost of equipment breakdown by assuring the proper timing of preventive maintenance activity. Said to be suitable for use in any industry for the control of any type of equipment. Applicable to any tape system. Manual includes flow charts.

Non-Shrink Mortar 362
Master Builders Co. 4-page publication tells how to achieve better results in 12 important construction operations through use of this mortar. Illustrated operations include waterproofing walls and joints, grouting building columns, machinery and anchor bolts, caulking sewer pipe joints, patching concrete, etc.

Floor Resurfacer 363
Stonhard Co. Directions for use of this product are contained in a 4-page set of instructions covering both concrete and wood floors. All steps and phases are carefully detailed for the prospective user.

Asphalt Pavement Coating 364
Maintenance, Inc. Colorful 4-page bulletin describes colored protective coating for use on pavements in commerical and industrial establishments, highway media strips, recreational areas, etc. Featured are light reflection and absorption and color reaction charts.

MISCELLANEOUS

Silicones for Electronics 365
Dow Corning Corp. This 12-page engineering guide explains how various physical forms of silicones contribute to reliability, miniaturization, modularization and environmental protection; increase serviceability over wide extremes of temperature; and aid value engineering. Describes typical applications in every area of use, from satellites to seismographic instruments.

What's YOUR Problem?

- **Has an accident or fire interrupted production?**
- **Want to know how to prevent it?**
- **Do you need background information on equipment for industrial safety, hygiene, or maintenance?**

As a service to its readers, "Safety Maintenance" will arrange to supply manufacturers literature on the following subjects. Just insert the key number on the Readers Inquiry Card on the preceding page and be sure to fill in your name and address. If you need information on a specific type of product, simply write it in on the Inquiry Card.

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	PERSONAL PROTECTION
101	Safety Goggles
102	Face Shields
103	Lens Cleaning & Anti-Fogging Equipment
104	Sweat Band
106	Respirators & Masks
109	Safety Belts
110	Safety Gloves
112	Anti-Slip Soles
113	Oil-Resistant Soles
114	Welding Helmets
	FIRST AID AND HYGIENE
124	Salt Tablets
125	Resuscitator Tubes
126	Antiseptic Medication
127	Burn Medication
128	First Aid Kits & Supplies
129	Stretchers & Litters
130	Throat Medication
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133	Dust Collectors
135	Hearing Protectors
136	Noise Analysis Equipment
137	Noise Mufflers
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141	Safety Cans
142	Fire Alarms
143	Safer Solvents
144	Degreasing Machines
145	Drum Safety Valve

Key Number	Subject
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148	Watchmen's Control Systems
	LIGHTING AND WARNING DEVICES
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	GUARDS
178	Machine Guards
179	Power Press Feeders
180	Safety Tools
181	Vacuum Sheet Lifters
182	Valve Operators
184	Safety Lock-Outs
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191	Safety Signs
192	Safety Awards & Emblems
193	Employee Safety Guide
195	Changeable Letter Signs
196	Safety Poster Kit

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Safety Maintenance

formerly "SAFETY ENGINEERING"

Volume 120, Number 1 **July, 1960**

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Cover Picture from General Electric Co.: Using controlled atmosphere, glove-box facilities, technicians place plutonium-aluminum alloy rods into the Hanford atomic plant's new plutonium fuels pilot plant at Richland, Wash.

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● CUE FOR APPLAUSE

When giving well-merited credit to management and labor for their never-ending effort toward reducing accidental fatalities and injuries in industry, often we are prone to overlook the day by day accomplishments of the casualty writing insurance fraternity. Among the nation's many unsung heroes, none is more shrouded in anonymity than the insurance company safety engineer or inspector whose contribution to safety literally is beyond all measure.

This fact is brought startlingly out in the open when we throw well-deserved posies in the direction of top management, labor unions and the rank and file for their recognition that accident and injury prevention is the one area where there is a refreshing unanimity of thought. Those three segments of our industrial world have no quarrel with the time-tested fact that industrial injuries are a tragic burden resting heavily on the shoulders of the employer, the employee and society at large.

The short-sighted minority who may view a casualty insurance company merely in the light of a claim-disbursing organization, interested solely in boosting insurance premiums, needs to be told from every available soap-box that while we are many light-years away from safety's Utopia, the loss prevention engineers of casualty insurance companies are preventing more injuries every day of the year than they are compensating for (and even grammatical purists will forgive us for ending a sentence with a preposition where the need for emphasis is involved).

Disability caused by work accidents might well have cost American employers $5 billion or more in lost production time, paid benefits and insurance costs last year had it not been for the loss-prevention services of American casualty insurance writing companies, according to "*Journal of American Insurance.*"

This loss prevention in workmen's compensation has now reduced the industrial fatality rate to one fatality per 10 million man-hours. Admittedly still too large, nevertheless the *Journal* points out in a copyrighted article, "that's a 50 percent reduction during the two decades from 1938 to 1958." Also, to the credit of insurance industry safety engineering is the fact that since 1940, disabling injuries have risen only eight percent while employment has climbed forty percent.

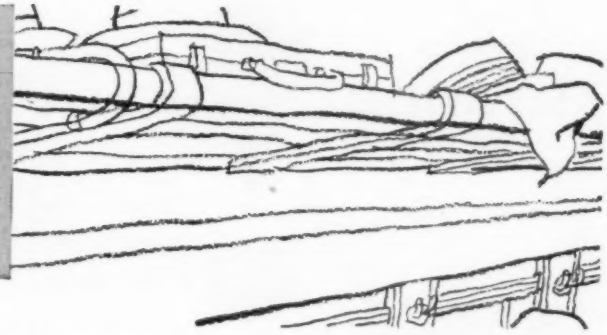
The insurance interests themselves would be the first to concede that the job of loss prevention is a continuing and often discouraging one. The many new advances in industrial techniques cannot fail to introduce brand new hazards which, left uncontrolled, would plunge this nation into an abyss of accidental fatalities and injuries. The work accident disability toll to employers ran an estimated $2½ billion last year, with total disabling injuries numbering just short of 2 million. Total injuries were eight percent above the 1958 figures. The injury rate advanced 1.8 per thousand workers, not alarmingly worse than the record of recent years. The true costs to the victims never can be computed.

Though only half what they would have been, without industrial safety programs, fatal injuries in 1959 still numbered 13,800. The financial loss and tragic overtones are beyond comprehension. Latest figures released by the U. S. Department of Labor show the 1959 fatality toll four percent above a year earlier. However, when related to total employment, the "*Journal of American Insurance*" reminds us, the death rate of 22 per 100,000 workers matched the all-time record low established in 1958.

Notwithstanding new hazards not even dreamed of when safety effort was in its swaddling clothes, the chief causes of work injuries remain old-fashioned slips, falls and materials-handling accidents. Apparently, we can cope with the new technical dangers inherent in jet-age advances but still find it difficult to prevent a fall resulting in a broken leg.

The insurance loss prevention services which have effectively held down disabling injuries are widely varied and are a tremendous tribute to compensation writing companies. Those services include inadequately publicized inspection programs, plant safety engineering consultation, training programs for safety personnel and workers, special studies and development of new techniques to solve specific hazard problems and constant research. Industrial accident losses, staggering though they are, would be infinitely more stratospheric without the behind-the-scenes effort of the casualty insurance interests. If a spotlight invites applause, then a loud cheer should go up for those who too often are left standing in the wings.

"When you put in the Payroll Savings Plan...



Did your people complain about being solicited?"

"Definitely *not*, Art. Of course we didn't allow our person-to-person talks with employees to approach 'pressure.' We *invited* our staff members to share in the convenience, sound thrift and personal satisfaction of this plan for investing in U. S. Savings Bonds.

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If your Company has not installed a Payroll Savings Plan as yet, or if you would like to have a greater participation in your organization, contact your State Savings Bonds Director. He is an expert in helping you present this sound, systematic saving plan to your people as a privilege they are entitled to share. They'll be proud to become shareholders in America. You'll be proud, too.

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SAFETY MAINTENANCE

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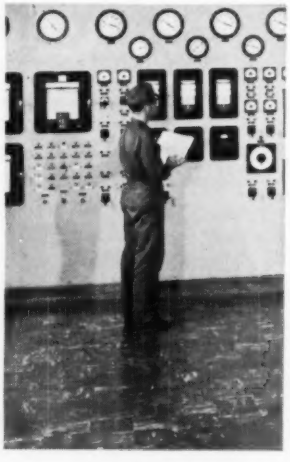

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THE FUTURE SHOWS

Raleigh, N. C. *September 14–17*

Second Annual Southeastern Maintenance and Engineering Show & Conference (State Fair Arena). Robert E. Zimmerman, Manager, John Harden Associates, P. O. Box 3173, Greensboro, N. C.

Chicago, Ill. *October 17–21*

Forty-Eighth Annual National Safety Congress and Exhibit (Conrad Hilton, Pick-Congress, Sheraton Towers, Morrison, and La Salle Hotels). R. L. Forney, Secretary, National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

Pittsburgh, Pa. *October 26–27*

Twenty-Fifth Annual Meeting of the Industrial Hygiene Foundation (Mellon Institute). Dr. H. H. Schrenk, Managing Director, Industrial Hygiene Foundation, 440 Fifth Ave., Pittsburgh 13, Pa.

Chicago, Ill. *Jan. 30–Feb. 2*

Twelfth National Plant Maintenance & Engineering Show and Conference (International Theatre). Clapp & Poliak, Inc., 341 Madison Ave., New York 17, N. Y.

Fort Wayne, Ind. *March 14–15*

1961 Northeastern Indiana Safety Conference and Exhibit. Ivan A. Martin, Manager, Safety Council, Chamber of Commerce Bldg., Ft. Wayne, Ind.

PROTECTING INDUSTRY'S MOST VITAL TOOL

Industrial Injuries—25 Percent Involve Hands, Fingers

by T. L. PETERSON
Sales Manager—Industrial Division
The Wilson Rubber Co.
Canton, Ohio

Take a walk through your plant and observe those at work:

How many have gloves sticking out of their back pockets?

How many are wearing ragged, hole-filled gloves just begging to be caught in machinery?

How many don't even have a pair of gloves?

If you can count even a few in each of those categories, you may be asking for trouble.

The National Safety Council, in reports from only 11 state labor departments for one year, found 450,000 cases of injury to hands and fingers. The injuries accounted for about 25 percent of the total cases and 16 percent of the compensation.

Average cost per case was $377 for hand injuries and $314 for injuries to thumbs and fingers.

How many of the injured workers were wearing gloves was not indicated.

But chances are good they were in the minority from reports we have received from plant safety directors.

It's not too difficult to convince a worker that he should be wearing gloves when the product involved is chemical or toxic. The necessity is obvious.

But on the marginal side—the jobs which normally appear to be

(Continued on page 49)

PROTECTIVE CLOTHING SERIES
Other articles Aug. & Sept.

DOES THE GLOVE FIT THE JOB?

LEFT-TOP: Neoprene gloves provide excellent resistance to most oils, greases, petroleum solvents; smooth or rough.

LEFT-MIDDLE: Surgical-type latex gloves are available in tissue-thin styles permitting maximum sensitivity to touch.

LEFT-BOTTOM: When handling sharp-edged metal objects, puncture-resistant gloves protect against cuts, chemicals.

RIGHT-TOP: For service in powdered or liquid chemicals, disposable, Polyethylene five-fingered gloves are suggested.

RIGHT-BOTTOM: To guard precision tools against perspiration-caused corrosion use sulphur-free plastic gloves.

Dark-lensed head frame goggle is one of styles suitable for welders' helpers, etc., as protection against occasional flashes.

by **T. J. NOFTLE**
Safety Director
Hobart Brothers Company
Troy, Ohio

In arc welding it is essential that the eyes be protected from the glare and heat of the arc, and particles of hot metal which fly up from the work.

In addition to the eyes it is also imperative that the skin be adequately protected. The intensity of the ultraviolet and infrared rays of the electric arc makes such protection necessary.

Instantaneous flashes, if repeated too frequently, will result in what welding operators call "hot sand in the eyes." The experience of eye burn is a very painful one while it lasts. A 2% solution of Butyn Sulphate has been found to offer excellent relief for these eye burns.

Eye and Face Protection

Two types of face shields are available for protecting the head, face, ears, neck and eyes while welding. The hood type is worn like a helmet leaving both hands free. The hand type is held before the face with one hand while welding with the other. The choice between these two types depends upon the operator's personal preference and upon the type of work being done.

The shields are equipped with a special arc-proof lens which absorbs the infrared rays, the ultraviolet rays and most visible rays produced by the electric arc. At the same time there is a reduction in the intensity of the light reaching the operator's eyes. Ordinary smoked glasses or the goggles used by gas welders will not afford proper protection. No one should be permitted to look at the welding arc, even for an instant, through the naked eye or through anything other than an approved arc-proof lens.

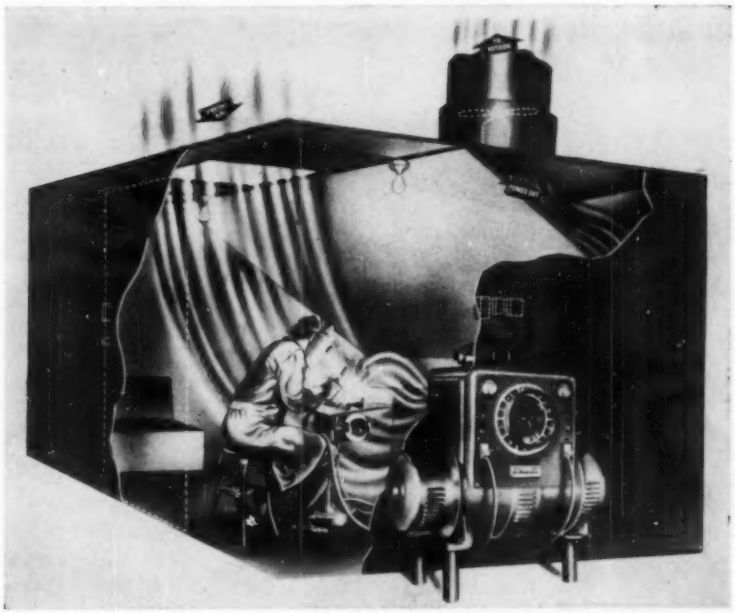
Protects from Splatter

Clear cover glass is placed over the exposed side of the lens to protect it from molten metal spatter. Unless this glass is the "non-spatter" type, it should be replaced at regular intervals so that the operator's vision will not be impaired by any globules of metal which might stick to the glass. Some operators wear clear goggles underneath the face shield. This protects the eyes from flying particles when the shield has been lifted or laid aside so the operator can chip or brush the slag away from the weld.

For people such as welders' helpers, foremen and inspectors, special goggles should be provided to protect their eyes from occasional flashes. A goggle with adjustable headband, well ventilated, light and comfortable, has proved adequate. These goggles come equipped with clear cover glass and lenses with greenish tints which do not impair the wearer's vision and still provide protection against arc flashes.

Special precautions should be taken to protect other workers, and people who are passing by, from the rays of arc welding operations. This protection may take the form of a booth or screen depending on the operation. For temporary operations a screen would suffice.

Included among the various garments which are used to protect welders from the danger of serious burns are leather gloves, jacket and leggings.



Shown in this picture is a ventilated booth for the use of welders and its mechanism that provides adequate control of fume and flash hazards.

SAFE PRACTICES IN ARC WELDING

Where the operation is of a permanent nature a booth may be erected. Reflected rays can be as harmful as direct rays. Therefore, these booths or screens should be painted black or blue-gray to prevent reflection of harmful rays.

While the arc welding process is taking place globules of molten metal and flux are emitted for a considerable distance. To protect the operator from serious burns certain protective clothing is recommended.

Both hands should be protected by gloves to guard against possible burns from hot metal as well as from the sunburn effect of the arc rays. Ordinary clothing should also be protected against molten metal. Gloves, gauntlet sleeves and aprons of chrome leather or spark-resisting duck are recommended for wear during welding operations. The ordinary clothing should be sufficiently heavy to prevent infrared and ultraviolet rays from penetrating to the skin.

Cuffs on trousers should be eliminated or turned down so as not to serve as a lodging place for any falling globule of molten metal. It is recommended that sleeves and collars be kept buttoned and that pockets be eliminated from the front of overalls and aprons. High-top or ankle-type shoes rather than oxford-type should be worn.

Proper Ventilation

The smoke and the heat of welding should be removed at its source —at the arc. This is the most efficient and economical method if working conditions warrant it.

The equipment consists of an exhaust duct and a motor driven suction unit. The intake of the exhaust duct is placed as near as possible to the welding arc so that the heat and fumes are removed immediately from the work area and exhausted to the outside of the building.

Inasmuch as working conditions and material vary to such a great extent, it is difficult to establish fair standards for ventilation. However, ventilation at the rate of 100 cu. ft. per minute per operator should be sufficient for most work. When working in confined areas such as tanks, make certain that adequate ventilation is provided.

Preventive Maintenance

Frames of all welding equipment should be grounded to avoid the possibility of a shock. This shock is more of a nuisance than a serious hazard. However, if an operator is welding on a structure where there is a danger of falling, this shock, even though slight, might cause him to lose his balance and fall. Therefore, it is recommended that all welding equipment be grounded.

Make certain that electrode holders are in good condition at all times. These holders are insulated to protect the operator. They should be handled with care and checked at regular intervals to make certain no damage has occurred.

Miscellaneous Precautions

Keep electrodes off all floors as they constitute a serious slipping hazard. Experience has shown that accidents have occurred as the result of an operator stepping on an electrode and losing his balance.

When welding is performed on any containers that have held flammable liquids or vapors, make certain that the container has been thoroughly cleaned and that no flammable liquid or explosive vapors remain in the container.

Fire Safeguards

No discussion on safe practices would be complete without mentioning fire protection. Use extreme caution when welding in areas where flammable material or explosive vapors are present. Rooms or areas where there are spraying or dipping operations taking place

are excellent examples of potential fire hazards when welding is done in these areas. If at all possible, move the work to be welded from these hazardous areas. If this is not possible, use a fireproof tarpaulin to cover all combustible material and keep fire extinguishers immediately available should it become necessary to use them.

Pictures by courtesy of Hobart Brothers Co. Material by permission of Industrial Commission of Ohio's "Monitor."

Education Units For Public Safety

New York Police Commissioner Stephen P. Kennedy some time ago directed the establishment of the Safety Education Unit under the command of Assistant Chief Inspector John J. King. This unit is available upon invitation from all types of organizations in the New York City area for the presentation of driver and pedestrian safety programs.

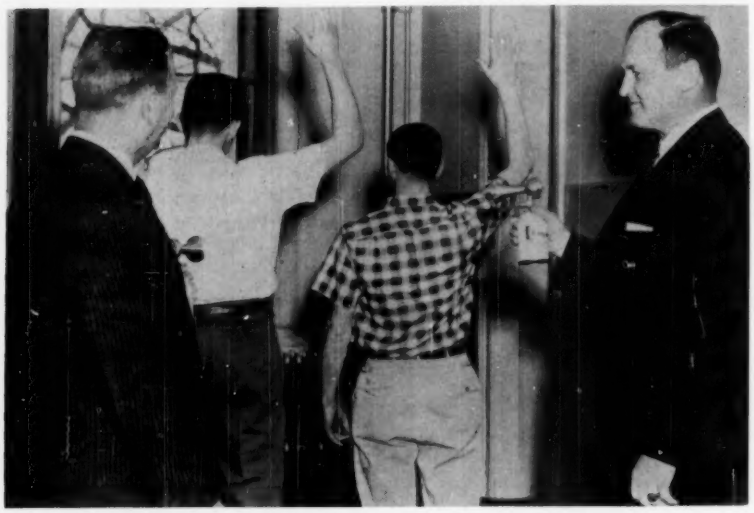
The Safety Education Unit is comprised entirely of police officers from the Safety Division who are educated and trained to demonstrate and discuss such traffic safety matters as:

1. Rules of the Road.
2. Radar in Traffic Law Enforcement.
3. Harger Drunkometer which is used to test persons arrested as intoxicated drivers.
4. Psycho-physical testing machines to point out the defects present in many of our drivers that may be unknown to them at the time.
5. A 50 minute "Court Scene" portraying the procedures and techniques in a simulated court of law where a person has been arrested and charged with driving while intoxicated. For this a substantial audience is desirable.
6. Safety programs for school children (high school students included) and teen-age groups.

Each program can be supplemented with safety films, slides or visual aids that are pertinent to the subject being discussed.

During the year 1959 members of the Safety Education Unit presented 531 safety programs.

Any New York organization, club or corporation desiring the services of the Safety Education Unit should forward a written request to: Deputy Commissioner of Community Relations, Police Headquarters, 240 Centre St., New York 13, N. Y.



HANDS UP! Deaf students raise hands to show they can hear horns.

The Deaf Can Hear Warning Signals

While the efficiency experts have been busy on the one hand in trying to determine how to reduce noise in industrial plants, the safety experts have been up against an equally baffling problem: As long as such din persists, how to make yourself heard above the noise in the event of emergency.

Impressive evidence that Freon-powered signalling horns hold the answer to this latter problem now comes from the Maryland School for the Deaf, Frederick, Maryland. Even the totally deaf hear the loud, penetrating blast of these horns, the evidence shows. And they not only hear it, but they react with a jolt.

This phenomenon was stumbled on at a lecture before deaf students by Harold S. Eustis, vice chairman of the Maryland Petroleum Association, a non-profit trade association dedicated to furthering the petroleum industry. To demonstrate the various uses of petroleum derivatives, of which Freon is one, he displayed several of these horns. Inadvertently, he sounded one off. Instantly, several of the students reacted.

Lloyd A. Ambrosen, headmaster of the school, has explained that the totally deaf students did not actually "hear" the horns in the auditory sense. "They 'feel' the sound in a kinesthetic sense," he has said, "although in cases where hearing is not completely gone, the reaction is based on a combination of kinesthetic and auditory response."

While the principle of communicating with the deaf by vibrating sound is not new, devices used in the past have been large and cumbersome. In contrast, the aerosol type horns, being small and portable, are exceptionally handy and easy to use.

Picture by courtesy of Falcon Alarm Co.

Logging Injuries

This report contains a detailed analysis of the frequency, severity, and kinds of injuries experienced in logging. Included in the report are analyses of:

1. Injury rates by
   a. Establishment size
   b. Geographic areas and States
   c. Operating departments
2. Nature of injuries and parts of body affected

This report, No. 154, may be obtained free of charge by directing your request to the Bureau of Labor Statistics, U.S. Dept. of Labor, Washington 25, D.C.

Limestone-clay slurry feeding through neoprene lined vibratory screener in portland cement manufacturing plant.

Neoprene Dampens Maintenance on Wet Screening Units

Neoprene sheet linings protect metal rims of vibratory separators from erosion by abrasive cement slurry.

A major cement company installed a battery of vibratory separators two or three years ago to increase its production rate. The separators are used in the early stages of the manufacture of portland cement, prior to the kilning. They screen a 70% limestone, 30% clay slurry, which is ball milled progressively finer until it passes through 24 mesh.

The new vibratory screens worked very well at first. Faster throughput speeded the processing and a finer average particle size was delivered to the kiln than previously. After a few months, however, maintenance troubles began. The metal rims of the separators were wearing through and leaking. Rapid vibration was not only speeding the screening rate, it was also speeding the rate of metal abrasion by the sharp limestone particles.

Neoprene lining on a similar vibratory separator which is used in classification of clay prior to the slurry feeding operation shown at the top.

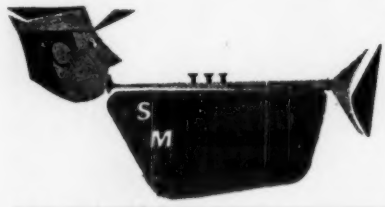
When contacted, the manufacturers of the separators swiftly solved the problem. They lined their units with ⅛-in. thick neoprene vulcanized sheet.

Neoprene was chosen for this job because it had proven successful in a number of other applications on this same vibratory separator. For instance, the channel gasket, the tension ring-screen gasket, and

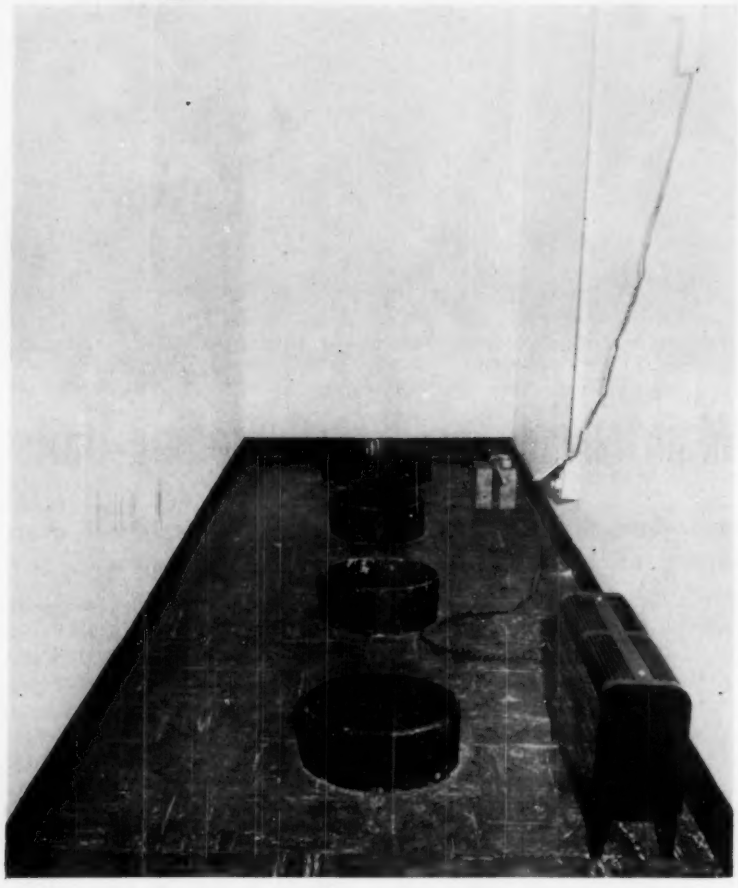
the electrical cord jacketing have been neoprene for over 10 years. The neoprene protective cap for the center tie down assembly is more than 5 years old, and the motor cover plate gasket was changed to neoprene some 4 years ago. All these parts are now longer lived because of neoprene's resilience and its chemical and abrasion resistance. More recently certain of the separator models have been equipped with flexible neoprene connectors on their discharge spouts. Here resistance to flex fatigue is most important, for the molded neoprene sleeves vibrate at the rate of 2,400 times/min.

But, returning to the cement mill's maintenance problem; now the mill gets at least six times the previous three months' service life of bare metal rims. On the eight-inch deep rim of a 48-inch diameter separator that had been neoprene lined 17 months earlier, the surface was worn, but still in satisfactory condition after handling a total slurry weight of 90 tons/hr., 24 hr./day, 7 days/week. The neoprene lining had required no maintenance, nor had the separator, in all that time.

Pictures by courtesy of E. I. du Pont de Nemours & Co., Inc.



A SAFETY IDEA



Radioactive Waste Wells

The problem was the temporary disposal of protective clothing or materials contaminated by radioactivity at the Diamond Ordnance Fuze Laboratory in Washington, D. C. The solution of the problem was the installation of these disposal wells in the radioactive materials storage building. Any material—gloves, aprons, and other expendables—exposed to radiation is dropped into the wells, that utilize 12 and 18 inch diameter wrought iron pipe columns and extend eight feet below the floor.

Picture by courtesy of A. M. Byers Co.

Lighting Exposition

The 3rd National Lighting Exposition and World Lighting Forum has been announced by Harold R. Meyer, President of the National Lighting Expositions for March 5–8, 1961, at New York's Coliseum. Keen interest is already being felt in the lighting industry with one third of the exhibition space already contracted. The two previous lighting shows drew a record 40,000 people to view the very latest in lighting.

The highly successful symposium feature of the two previous lighting shows, which presented national experts in a series of twelve panel discussions having to do with all phases of lighting, will be carried one step further with the 3rd National Lighting Exposition. Plans are being formulated for a World Lighting Forum, in which lighting experts from all over the world will present their latest findings.

All facets of the lighting industry will be represented at the manufacturers' exhibits, covering such diverse classifications as home, design, office, factory, theatre, highway, airports, institutions, recreation, etc. Attendance for both the Exposition and the World Lighting Forum is by invitation only and is open to everyone working in, with and for the lighting industry. The 3rd National Lighting Exposition and World Lighting Forum will again be sponsored by LLEMSA (Lighting, Lamps and Electrical Manufacturers Salesmen's Association, Inc.).

Fig. 2. Machine service men take a box of wipers with them when making rounds to ensure clean materials are handy.

Fig. 3. Laboratory personnel are given an assist in personal cleanliness through disposable paper wipers always at hand.

Fig. 1. Stainless steel vessels in the extract section are kept spotless by regular removal of residue by paper wipers.

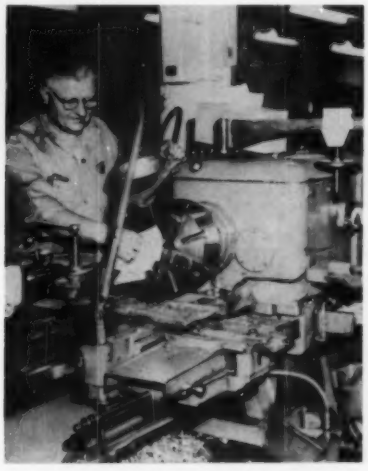


Fig. 4. Lathe is maintained by removing oily film, chips with a disposable wiper. Latter is replaced as often as needed.

The Indispensable Disposable Wiper

Paper wipers find widely varying uses for safety and sanitation at Parke Davis & Co.

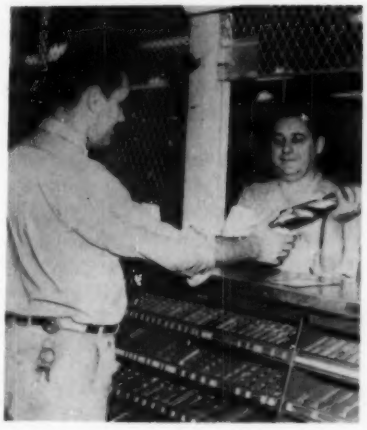
A significant change in plant wiping materials has resulted in several major benefits for Parke Davis & Co., Detroit, one of the nation's leading pharmaceutical manufacturers.

Adoption of disposable paper wipers eliminated a hazard that existed previously when cloth wipers were used. Cloth wipers containing metallic fragments and glass particles from previous use were dangerous. Some cuts and skin abrasions resulted when soiled wipers were used inadvertently for cleaning the hands.

Discarded Immediately

Now employees use paper wipers for most cleaning and maintenance applications without any threat to their personal safety. This is because paper wipers are discarded immediately after a single use, and are replaced with fresh, clean wipers from portable dispensing boxes.

Fig. 5. High speed drill is cleaned with disposable wiper before tool crib attendant will okay receipt for storage.



Having a source of clean wipers always handy, employees adopted the practice of discarding soiled wipers without delays. Also at the job site, they use only clean wipers for their hands and faces, a habit that not only prevents them from being cut or scratched, but also engenders personal cleanliness on the job.

Wiping practices now employed for the upkeep of equipment in major processing departments have given Parke Davis the added benefits of improved housekeeping and plant sanitation. Because the wipers are disposable, they are not scattered around equipment after use. Waste containers are spotted throughout plant areas for easy disposal of refuse, which is removed daily and burned.

In Parke-Davis' Extract Department, stainless steel vessels are

Another Injury Checked

Guard Guards As a Good Guard Should

Apoliner Alvarez learned how to smile that accident off when he was inflating a 7:50 × 16 tire recently at the shop of the Superior Dairies in Austin, Texas. Typical of a safe workman, he had the tire in the inflation cage shown above. The lock rim came off and left the deep scars in the steel cage (circled in the photograph). The cage had been installed three months earlier at the suggestion of a safety engineer from Texas Employers' Insurance Association.

wiped at least once a day to remove residue spillage. (Figure 1.) Because the wipers that are used have textured surfaces, they are especially suited for scooping up and trapping the extract residue. Tiny bumps and indentations made in the paper by a perforating and embossing process give the wipers their textured quality.

The wipers are also lint-free and thus do not shed deposits on the vessels which are polished to a high lustre. The wipers' tough, two-ply construction permits them to be rubbed vigorously without tearing for the polishing application.

Machine Cleaning

In the Biological Filling Department and Finishing Department, West Spinner machines are wiped periodically to ensure and maintain highly sanitary conditions. The machines are used to spin aluminum seals on bottles of medicinals, and special care is taken by the "machine service man" to wipe the spinning devices. The paper wipers have the necessary resiliency to be worked in and around these hard-to-reach sections, and the lint-free qualities of the paper prevents shedding. (Figure 2.)

Laboratory personnel who handle chemicals and other materials in the Gamma Globulin Section keep their hands clean with the disposable paper wipers. After handling any chemicals, the hands are washed and then dried in the highly absorbent two-ply wipers. (Figure 3.)

In a pharmaceutical plant, even the Machine Shop must reflect the cleanliness and sanitation that distinguishes this type of operation. (Figure 4.) At Parke-Davis, employees keep tools clean by soaking up greases and cutting oils in the absorbent plies of the wipers. Although several wipers are needed to perform these chores, the expense is relatively low because the paper wipers cost about one-third of a cent apiece. In addition, a more effective cleaning job is accomplished because saturated paper wipers are discarded and not used beyond the point where they would wipe on more dirt than they wiped off.

At the tool crib, all tools are cleaned with the paper wipers before the attendant handles and stores each item. This contributes to better housekeeping in the crib and ensures that oils and greases will not be spread around to soil the facilities. (Figure 5.)

Use of the paper wipers has become so widespread throughout the plant that each department stocks its own supply. Orders are placed by department foreman through the central stores. By adopting paper wipers for some 85 percent of the plant's needs, the major portion of handling jobs associated with cloth wipers has been eliminated. This means less counting, bundling, and record keeping for stores' personnel, freeing them for other duties.

Based on the results achieved at the Detroit plant, Parke Davis also has made the paper wipers available to employees at its Rochester, Michigan, biological farm. Main applications for the wipers at this location are laboratory and equipment maintenance. Use of paper wipers at both locations has produced a 25 percent annual savings for the company in its over-all plant wiping expenditure.

Pictures by courtesy of Scott Paper Co.

Foremen's Safety Talks

The National Safety Council has published a new volume of "Five Minute Safety Talks for Foremen." The book—10th in a general industrial safety series—is divided into sections on motivation, machines and tools, materials, movement and managing men.

A collection of 52 safety talks written by Robert L. Moore, superintendent of engineers, Kemper Insurance Co., the book is based on material he gathered in more than 20 years in safety engineering. Industrial companies will want to keep the book as background material for safety talks and articles, according to the Council.

Further information and quantity prices on Book 10 of the "Five Minute Safety Talks for Foremen" may be obtained from the National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

SM GOES TO — the 30th New York Safety Convention

PART II

The June issue of SAFETY MAINTENANCE published summaries of several of the speeches presented by safety, fire and hygiene authorities at the 30th Annual New York Safety Convention. Following are additional highlights of addresses presented at various sessions of the meeting.

Fire Protection

The likelihood of serious pier fires in the port of New York has been reduced by better construction of new piers and other fire protection measures but the possibility of costly and fatal pier fires is by no means eliminated, the annual convention was told by William G. Hayne, who investigated every serious pier fire in New York since 1932. He is superintendent of the fire prevention and water supply bureau of the New York Board of Fire Underwriters.

Mr. Hayne said that when most of the present piers were built "the possibility that they might be very vulnerable to destruction by fire seems not to have been either thoroughly explored or fully appreciated."

"The result has been," he said, "that their design and construction did not incorporate features that would restrict the growth of a small fire in either the substructure or superstructure and prevent it becoming a conflagration."

Because of this, Mr. Hayne said, more than a dozen piers have had conflagrations since 1932, with a loss of more than fifty lives and many millions of dollars. The exact cause of most of these fires remains a mystery, he declared.

The only one where the cause was "quite definite," according to Mr. Hayne, was a pier fire where "a truck carrying a load that was too great for it struck and ruptured a drum of very flammable material with consequent loss of the entire pier and bulkhead building."

In most cases, where there was no eyewitness to the start of the fire, the origin later attributed was "conjectural," Mr. Hayne said. He said that the frequently attributed "carelessly discarded cigarette butt" was "a very easy answer when no other cause can be found, although after the fire has been extinguished there cannot possibly be any physical evidence of the butt." This sort of conjecture, he said, "upsets the statistics."

"On the other hand," he said, "I think all of us have discarded a match we thought was extinguished only to see it flare up again on the floor. Since it may be the match that actually is the cause of the fire, I wonder if it could be possible that if mechanical cigarette lighters were issued to the pier workers this hazard would be reduced or even eliminated."

Expanding school populations, unparalleled industrial productivity and use of new chemicals will combine to make the next few years "a challenge to all men in the safety and fire protection field," a fire protection expert declared. John H. Jebens, chief fire protection engineer of the Borden Company, said student populations in some school districts were so far outstripping new school construction that classes were being held in community halls, church houses and other structures not intended for classroom use.

This has created an urgent demand, he said, for periodic safety inspections and for such alterations and installations as would bring hazards to a minimum.

"As an example," Mr. Jebens said, "in a school district where the student population in 1945 was about 400 and now is close to 7,000 a crash program for classroom facilities necessitated utilization of former mansions of frame construction. The local board asked for assistance in the protection of life and property."

Mr. Jebens described how regular inspections were instituted, corrective measures outlined to the school authorities, and fire protection programs set up in the senior and junior high schools and six elementary installations in that district.

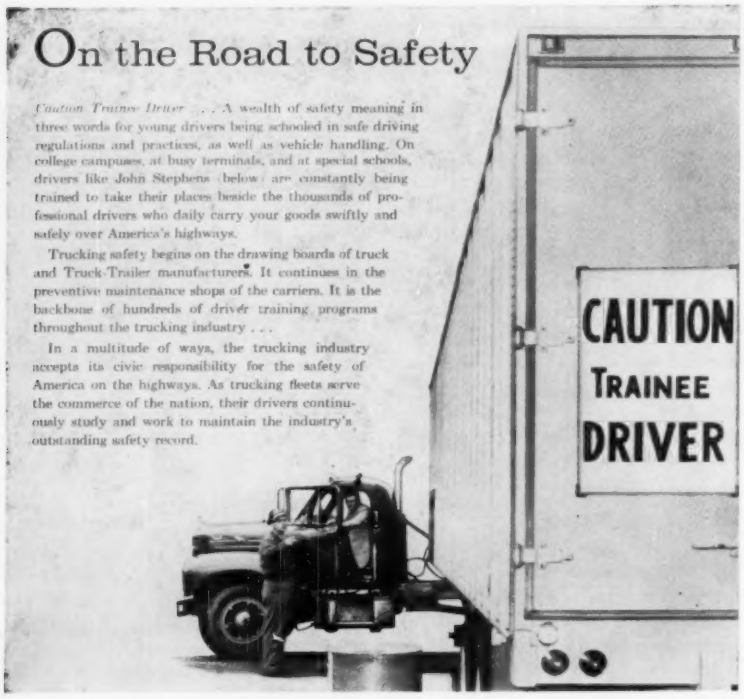
Mr. Jebens said recent chemical, electronic, nuclear and industrial progress was "a challenge beyond description to the efforts of the safety and fire protection engineer."

"This is particularly true," he said, "of fire prevention programs and emergency fire control operations, not only of industry but also of municipal fire departments."

Explosions resounded and flames flared in the grand ballroom of the Statler Hilton Hotel—but no one sounded the fire alarm. It was all part of the fire protection session of the convention. The fires and explosions were set off by Arthur E. Miller, director of research of Scott Aviation Corp., of Lancaster, N. Y. Warning that the behavior of oxygen was not always predictable, Mr. Miller said that combinations that failed to explode in laboratory testing sometimes exploded during use.

"One easy way of reducing the hazards inherent in oxygen usage," he said, "is to use oxygen only when oxygen is necessary, but not to use it as a substitute for other gases. In oxygen inhalation therapy, in resuscitation, in high altitude flying, gas welding or other specific purposes, oxygen should be used where needed. But oxygen should not be used as a substitute for compressed air or for nitrogen or other gases.

(Continued on next page)


On the Road to Safety
Caution Trainee Driver . . . A wealth of safety meaning in three words for young drivers being schooled in safe driving regulations and practices, as well as vehicle handling. On college campuses, at busy terminals, and at special schools, drivers like John Stephens (below) are constantly being trained to take their places beside the thousands of professional drivers who daily carry your goods swiftly and safely over America's highways.
Trucking safety begins on the drawing boards of truck and Truck-Trailer manufacturers. It continues in the preventive maintenance shops of the carriers. It is the backbone of hundreds of driver training programs throughout the trucking industry . . .
In a multitude of ways, the trucking industry accepts its civic responsibility for the safety of America on the highways. As trucking fleets serve the commerce of the nation, their drivers continuously study and work to maintain the industry's outstanding safety record.
CAUTION
TRAINEE
DRIVER

Safety Theme for A.T.A. Foundation Ads

Safety on the highway, as it applies to the Motor Transport Industry, is the theme of Fruehauf's 1960 ATA Foundation advertising program.

Fruehauf, a charter member of the ATA Foundation, made the announcement of its eighth successive year as a foundation member as the first ads in the 1960 program made their appearance.

Broad Scope of Program

This year's safety theme was selected by Fruehauf because of a feeling that while safety is of primary concern to America's Motor Carriers, the general public needs to be better informed as to the comprehensive program being carried on by the industry.

This advertising campaign will feature, among other things, outstanding safety records marked up by typical carriers, trainee drivers programs, equipment inspections, and accident free miles by drivers and other facets of safety efforts by the vast majority of motor carriers.

Nationwide Coverage

Before this series is completed, Fruehauf's advertising department and its agency will have made field trips to carriers in every section of the country, talked to these men, and studied their programs in order that the American public may have the full story of the many ways the trucking industry is accepting its civic responsibility for safety on America's roads.

In commenting on the Fruehauf announcement, Walter F. Carey, chairman of the board of the ATA Foundation said, "While we have come to expect Fruehauf's participation in the ATA Foundation as a matter of course, we are happy to see this particular series of Fruehauf ads in behalf of the industry begin to appear."

N. Y. Convention *(continued)*

"I have seen and heard of oxygen being used to inflate tires, to operate small paint spray guns, to pressurize hydraulic struts, to blow out gas lines, to inflate toy balloons and for many other similarly improper purposes."

Mr. Miller said such misuse of oxygen has caused fatal accidents, all of which could have been avoided.

At the same session, demonstrations and explanations of the hazards of static electricity were given by Robin Beach, of Robin Beach Engineers Associated of Brooklyn.

Call in the firemen before the fire starts! Lieutenant Luther M. B. Hooey of the New York City Fire Department, offered this advice to hospital administrators.

Lieut. Hooey is a member of the Department's fire prevention education unit. He said hospitals, both large and small, had such special problems in preventing fires and in fire control and evacuation of patients and personnel once a fire got started that they should discuss them with local fire officials. He outlined an organizational and operational set-up which he said every hospital should establish among its staff.

"When you have agreed upon a method for establishing the fire brigade," he said, "immediately call in the local fire chief, district fire officer or other local public fire protection official. Thoroughly acquaint him with general hospital conditions, known fire hazards, and first aid fire appliances.

"Explain your plans for organizing a fire brigade, and ask his advice and assistance. Accept his counsel. He is an expert and usually has had years of practical experience."

Among the problems with which a hospital fire brigade chief must cope, said Lieut. Hooey, was: "What methods to employ to effectively control the dangerous actions of doctors who attend patients in oxygen tents while smoking cigarettes."

Highway Safety

A startling prediction that traffic accidents might increase 100 to 600

percent in some states and municipalities during this decade was made by Paul H. Blaisdell, public relations associate of the Association of Casualty and Surety Companies. He said that over-all traffic casualties were likely to increase, as they have during the decade just ended, "unless highway safety programs become much stronger."

"If the 60's match the 50's," Mr. Blaisdell declared, "traffic accidents will jump from 100 to 600 percent in various states and municipalities. Traffic injuries will show the same upward trend. Traffic fatalities will mount more slowly, but increase they will, even though the traffic fatality rate continues downward."

Addressing one of the convention sessions on commercial vehicles, he said the number of vehicles on the highways would increase during this decade and would "climb toward the 70 millon mark." He said congestion would not be greatly lessened despite the expanding Interstate Highway System. He said the new highways would "handle certain through traffic and urban by-pass situations and still leave the bulk of the traffic on present roads."

"More and more of the nation's goods will move by truck, and more of the people by bus," he said. Mr. Blaisdell predicted that requirements would become higher for getting operator licenses and that periodic reexaminations of drivers would be required.

Something more is needed than safe-driving training courses if the increase in traffic fatalities in New York State is to be halted, according to Karl T. Dutschmann, vice-president of the New York Telephone Company.

Calling last year "the worst since 1941," Mr. Dutschmann said motor vehicle accidents in this State killed 2,286 persons in 1959, a 5 percent increase over 1958. He added:

"I think I'm fairly safe in saying that every fleet operator, every commercial vehicle driver and even the drive-it-yourself drivers have been exposed in various degrees to some sort of safe driver training program. Federal, State and local governments have backed the attack on traffic accidents, to say nothing of the numerous other organizations through which safe driving, as a civic endeavor, has been preached to the public."

Mr. Dutschmann said that the avoidance of traffic accidents "requires more than being able to maneuver a car expertly, have good health and seeing habits."

"What every driver must have," he said, "is a safety awareness. This is a condition of mind whereby a sixth sense—a safety sense—prompts him to react safely to any element of danger which may be encountered."

Mr. Dutschmann offered to motor fleet operators and others who would reduce traffic accidents the following advice:

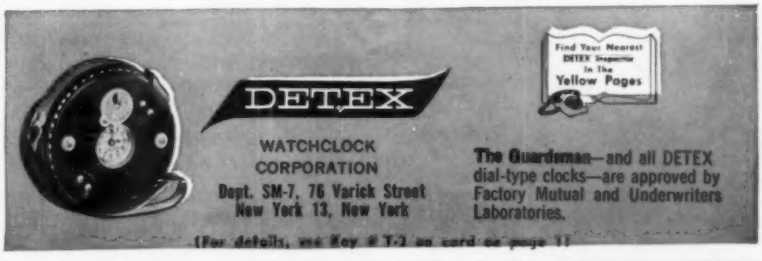
"We shouldn't concentrate on crash programs like safe driving, but have a safety program which will gradually bring the reasons for unsafe acts into the minds of our

Are you *sure* your guard is on the job tonight? Danger takes no "time off"; most burglaries and serious fires occur at night and on weekends.

Thousands of companies, large and small, *are* sure. They supervise their guards with DETEX Guardsman Watchclock Systems. Detex-supervised guards know you have a minute-by-minute, tamper-proof record of their vigilance. They know they *must* stay alert, throughout the lonely night.

Guardsman supervision saves money while protecting you—even over long holidays and weekends. There is no need for a supervisor to return to the plant to change a 24-hour dial.

Shall we send you complete information?


DETEX
WATCHCLOCK CORPORATION
Dept. SM-7, 76 Varick Street
New York 13, New York
Find Your Nearest DETEX Inspector In The Yellow Pages
The Guardsman—and all DETEX dial-type clocks—are approved by Factory Mutual and Underwriters Laboratories.

zone mail indeed results in speed

The Post Office has divided 106 cities into postal delivery zones to speed mail delivery. Be sure to include zone number when writing to these cities; be sure to include *your* zone number in *your* return address — after the city, before the state.

employees. We should point out that personal characteristics and lack of courtesy play a big part in any kind of accident—in the office, in the home, and on the road. A person must think and act safely at all times.

A Long Island bakery truck, a telephone company work truck in the Bronx, a milk truck in rural Orange County, and the passenger cars in which Department of Welfare officials ride about New York City are among the safest vehicles in the metropolitan area.

These types are among the nine top awards winners announced in the Greater New York Safety Council's 24th annual Inter-Fleet Accident Reduction Contest. Competing in the contest, on the basis of their safe operation records during the past year, were 373 fleets operating a total of 28,000 commercial vehicles.

The fleets competed in divisions and groups according to their type of operation, size of fleet, and whether urban or suburban. Performance for some types of operation was judged on the basis of average accident-free mileage and for others on the average number of hours the cars were operated without accident.

State Motor Vehicle Commissioner William S. Hults presented the awards at the annual luncheon of the Council's commercial vehicle section. Grand awards went to the contestants who had the lowest accident rates in their divisions. Other awards go to group winners. Accident-free contestants receive special citations.

Frank E. Palmieri, contest chairman, explained that the twelve fleets which went through the entire year without accident did not have the miles or hours of operation comparable to the low-accident operators designated as division winners. For this reason there are separate awards.

The grand award winners were announced by Mr. Palmieri as follows:

Class 1, Urban Miles: Sealtest Foods Metropolitan Division (Webster Avenue [Bronx] Wholesale fleet). One accident in 718,695 miles of operation.

Class 1, Urban Hours: New York Telephone Company (Bronx Construction fleet). One accident in 170,846 hours of operation.

Class 2, Urban Miles: Carl S. Epps Trucking, Inc., of Brooklyn. No accidents in 246,714 miles of operation.

Class 2, Urban Hours: New York City Department of Welfare. No accidents in 18,747 hours of operation.

Class 1, Suburban Miles: Dairymen's League Cooperative Association (Middletown Garage fleet) Five accidents in 3,447,318 miles.

Class 1, Suburban Hours: New York Telephone Company (Northern District Plant, Westchester area). Six accidents in 399,303 hours.

Class 2, Suburban Miles: New York City Department of Water Supply, Gas & Electricity (Catskill-Croton-Western District). Two accident in 529,184 miles.

Class 2, Suburban Hours: Drake Bakeries (Long Island Division). One accident in 67,200 hours.

Passenger car Division: Shell Oil Company (Suffolk County). Two accidents in 219,135 miles.

Four fleets of the Consolidated Edison Company of New York were among the accident-free operators. They are those of the production, operations-substation-operations, promotion, and building maintenance units.

Others who went through the twelve months without accident were Central Queens Chapter of the American Red Cross, Auto-Heat Corporation of Port Washington, New York City Department of Water Supply, Gas & Electricity (Long Island Watershed), Drake Bakeries (Suburban Bronx), General Bronze Corporation, Long Island Lighting Company (Stores Department), Sealtest Foods Metropolitan Division (Chappaqua fleet), and Shell Oil Company (Patchogue fleet).

Union-Management Committee Solves Safety Problem

Labor and management walk hand in hand down the safety side of the street in the industrial city of Akron, Ohio.

The nation-wide problem of safety in the plant has caused differences between labor and management in the past and sometimes these differences have led to drawn out and costly arbitration, or crippling wildcat strikes.

In the mammoth rubber plants of Akron, this is rarely the case.

Joint union-management safety committees have done much to erase the causes that lead to misunderstandings between the two groups.

In a recent case, Goodyear Tire and Rubber Co. research engineers had developed a cement to bond rubber to metal. Workers, unused to the odor given off by the cement, complained that the fumes were harmful to their eyes. The complaint was investigated by a management safety board and a similar group representing the workers.

The management group said there was nothing injurious in the fumes, but the labor representatives felt that at the least it was making a group of workmen highly unhappy.

Problem Worked Out

Over the conference table, management was able to demonstrate that the fumes were of a non-toxic nature. On the other hand, it was agreed that steps should be taken to alleviate their irritating qualities.

In such cases the union group has the option of calling in an inspector from the State Division of Health and Safety, who confers with members of both committees. Any recommendations he makes are taken under consideration by the joint committee, and whatever the outcome, the unions know that every step has been taken to protect their interests.

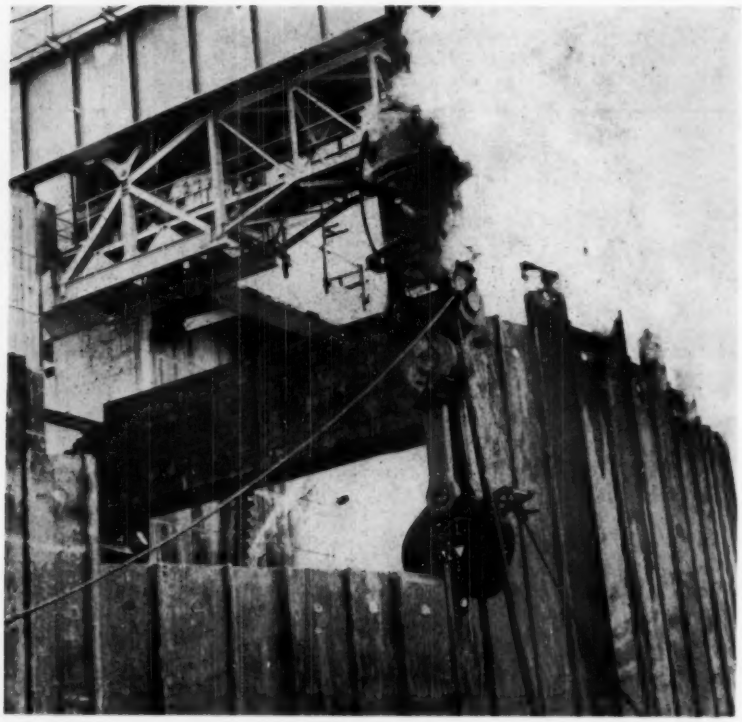
The success of the joint committees in solving problems before they are brought before grievance groups has been one of the chief attributes of the system. The operation has spread through the rubber industry since its inception at Goodyear in 1948 and has done much to spotlight the safety problem in industry to employees in the plants.

Factory and office workers at Goodyear recently initiated a program to stress the importance of safety in the plant. The employee newspaper is cooperating by publishing photo layouts, highlighting plant safety.

Both union and management are aware that the problem of safety—and certainly of labor relations—is still in need of serious thought from both groups, but the major rubber companies feel they have taken some lengthy strides toward solution of these problems that concern industry today.

(For details, use Key # T-4 on card on page 1)

New Tongs Give Construction A Safe Grip



Semi-automatic tongs ease pile-pulling task. Suspended from pile extractor lowered over pile's center web, tongs grip pile firmly, pull it from river.

Use of semi-automatic tongs is saving time, and lessening the possibility of accidents, during the construction of the New Cumberland Dam, at Stratton, Ohio.

The tongs are used to pull sheet piles, each 60 feet long and 16 inches wide, that had been driven deep into the river bed to form a cofferdam. The cofferdam was erected to hold back the waters of the Ohio River while men worked on a section of the dam. Powerful skin friction must be overcome to remove the piles, which are then used to form a cofferdam for another section.

The piles are normally pulled with a steam-powered pile extractor, but in the past this usually has required that someone run the pin of a clevis through a hole in the top of each pile. The job was time-consuming and occasionally was hazardous.

At the New Cumberland Dam site, however, Dravo Corporation, which is building the dam for the U. S. Army Corps of Engineers, replaced the clevis with an improved form of sheet piling tongs designed by a materials handling equipment manufacturer. Lowered over a pile, the tongs grip it firmly, with no need for anyone to make a manual attachment.

The tongs are lowered with their jaws locked open, so that the jaws slide readily over the center web of a pile. When the operator allows a bit of slack in the line, a latch is disengaged from its retaining pin, allowing the jaws to close. As the tongs are raised, the pile is pulled without difficulty.

The design of the tongs creates a wedge action, so that the jaws hold more firmly as the pull or tension is increased. The jaws are shaped to present a maximum bearing surface. For additional gripping power, each jaw has 10 teeth that provide positive gripping, without damage. The tongs have a maximum opening of 1¼ inch and a minimum opening of ¼ inch.

The tongs are used for initially extracting each pile. Then a pull on a tag line causes the tongs to become latched open again, releasing the tongs for placement on the next pile to be pulled.

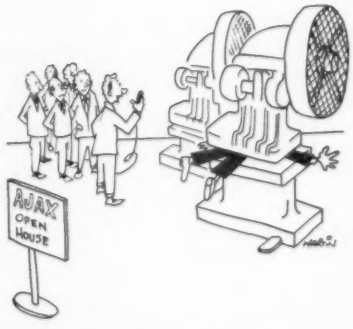
Sizes Available

The tongs have been made in both 30-ton and 50-ton capacities, depending on a contractor's requirements and the capacity of the pile extractor used.

Practically all working parts, including the jaws, are protected by a heavy alloy steel frame housing. The 30-ton tongs weigh approximately 1,150 pounds and the 50-ton tongs about 1,650 pounds. A bracket to connect the tongs to the pile extractor is furnished to fit the type and model of extractor used, and weighs about 450 pounds.

The New Cumberland Dam, being erected in three sections at a cost exceeding $13 million, is located midway between East Liverpool, Ohio, and Weirton, West Virginia. The high lift dam and its locks will replace three existing low lift locks and dams.

Picture by courtesy of Materials Handling Div., Heppenstall Co.



"Now you will have to be careful as we go through the press area!"

Edited by HENRY M. GROSMAN
Counselor at Law, Newark, N. J.

MEMBER . . . . . .
Master Superior Court, New Jersey American Bar Ass'n, New Jersey Bar Ass'n, Chairman, Committee on Workmen's Compensation, New Jersey Bar Association National Federation Insurance Counsel Past Commander, American Legion, Post 10, ... Newark, N. J.

COURSE OF EMPLOYMENT—Insufficiency of Evidence

Plaintiff's employer and another employer repaired equipment at the same service station. The employees of the two employers became friendly, exchanged labor and tools on their jobs when it was necessary and mutually assisted one another in work about the station. Plaintiff's injuries arose when a three-gallon can blew up in his face. The presence of this can at the station was the result of plaintiff's trying to assist the other employer's men in their use of plaintiff's personal equipment in painting their truck. The conclusion of the commissioner that plaintiff's injury arose out of and in the course of his employment is not supported by the evidence now appearing in the finding and award. Accordingly, judgment for plaintiff is set aside and the case is remanded for further action.

Farnham v. Labutis; Connecticut Supreme Court of Errors. January Term, 1960. April 1, 1960.

LIBEL ACTION—Seaworthiness—Safe Place to Work

A contractor's employee was unable to recover against a shipowner for injuries which he sustained while working inside the owner's vessel as it was undergoing a complete overhaul at the contractor's docks. The employee could not come under the doctrine that warranty of seaworthiness applies to shore-based workers performing work traditionally done by seamen inasmuch as the vessel was not in active maritime service but was undergoing general repairs at the contractor's docks. In addition, the owner was under no obligation to furnish the employee a safe place to work, because the contractor and not the owner had control over the vessel and the power to supervise or control the repair work in which the employee was engaged.

West v. United States Department of Commerce; United States Supreme Court. Docket No. 11, October Term, 1959. December 7, 1959. On Writ of Certiorari to the United States Court of Appeals, Third Circuit.

DEATH BENEFITS—Employment Relationship—Burden of Proof

A claimant widow appealed an order dismissing her claim petition for death benefits. Claimant contended that her husband was an employee of the defendant company and that he met his death in an automobile accident while in the course of his employment. Claimant had the burden of proving all of the elements necessary to support an award. It appeared that the alleged employer-employee relationship was fictitious and that decedent was actually an owner, not an employee, of defendant company. The court, therefore, concluded that the Board was amply justified in refusing to believe that decedent was an employee or that he was on the company's business at the time he was killed. Claimant failed to sustain her burden of proof and the Board properly refused to grant compensation. Order affirmed.

Wehr v. Philadelphia Derrick & Salvage Corporation; Pennsylvania Superior Court. No. 45, October Term, 1960. April 13, 1960.

DEATH BENEFITS—Findings of Fact

The court would not disturb the findings of fact and the award of the Industrial Commission in favor of claimant for the death of a minor employee who fell into the water during a lull period while working for appellant. The question of whether the decedent dived into the water voluntarily or accidentally fell into it and was drowned was a question to be determined by the fact finding body. The court concluded that it could not be said that the finding of the commission was not supported by competent evidence. Affirmed.

Steed v. Mount Pleasant Seafood Company; South Carolina Supreme Court. Case No. 4527; Opinion No. 17640. April 7, 1960.

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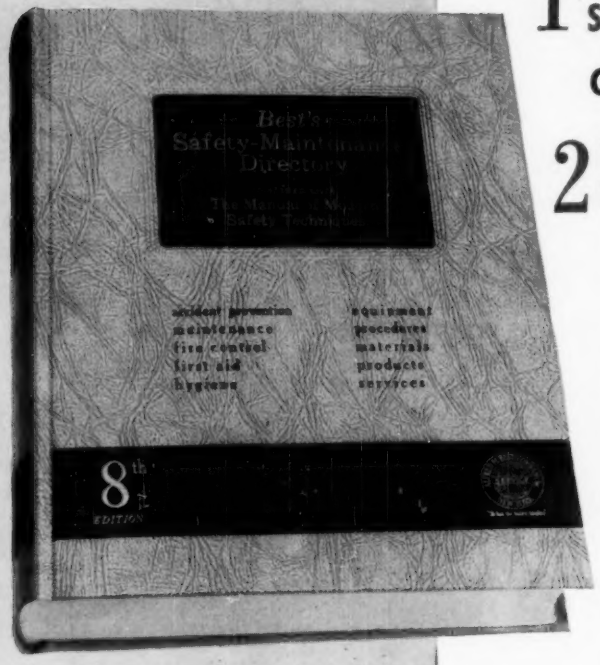

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Eye Protection In Scrap Yards

"The Eyes Have It" is the title of a new Safety Management Brief issued to its members by the Institute of Scrap Iron & Steel, trade association for the scrap iron and steel industry.

The May issue of the monthly bulletin tied in with the Institute's second annual National Safety Week for Scrap Yards, May 23–27, which had the theme this year of "Save Your Sight!"

The bulletin, prepared through the Institute's safety consultant, states that the first objective of an eye protection program should be to eliminate the causes of eye injuries. Causes most frequently found in scrap yards are:

1. Flying particles or objects—which may be produced by shears; by scale or chips being knocked from materials falling from a magnet, off a pile, or off a truck; by materials being bent or pounded; by one object striking another causing a burr, or scale, or paint to fly off.

2. Dust—a common, natural hazard to nearly everyone in practically every scrap yard.

3. Injurious light rays—from torching or welding operations.

Where these hazards can be controlled by guards, shields, or other containing methods, this is the most practical and most effective procedure.

Where these hazards cannot be controlled, persons liable to be exposed to the hazards should be provided with suitable protective eyewear.

Types of Protective Eyewear

There are several basic types of protective eyewear, each designed to provide a certain kind of protection. All such equipment made by reputable manufacturers meets certain standards, although there is some variation in style or design.

Cup type goggle—This goggle is designed to protect against heavy impact of flying objects coming from any and all directions.

Cover-all type goggle—This type is made of hard or soft plastic. In general it is more comfortable, lighter, and fogs less than the cup-type, although it may be necessary to replace the lenses more often as the plastic scratches easily. This type is probably the most practical in scrap yards as protection against flying objects and dust.

Spectacle type goggle—This type may be obtained with side shields and with lenses ground to prescription. It offers good protection against flying objects coming directly toward the front of the wearer, but is not satisfactory in dusty conditions.

Welder's type goggle—This goggle primarily offers protection against harmful light rays of torching or welding. However, the colored lens is generally NOT safety glass unless so specified in ordering. Only hardened lenses should be permitted for use in the scrap yard.

Face shields—This device offers protection to a larger area of the face than just the eyes, but has considerable open space where flying particles or dust may enter from the bottom.

Everyone—from owner to laborer—should be required to wear goggles in the yard!

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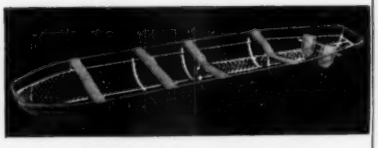

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(For details, use Key # T-5 on card on page 1)

Irradiated Fuel Shipping Safety

The Atomic Energy Commission has proposed a regulation to guard against accidental criticality, radiation exposure to individuals and the release of fission products during the shipment of irradiated fuel elements.

The fact that a number of reactors soon will be ready for refueling, and that construction of both domestic and foreign reactors has increased steadily, has created a need for irradiated fuel element cask design criteria and shipping procedures which will be acceptable from the radiological and criticality standpoints.

The casks, which are expected to cost as much as $100,000 each, must be constructed to maintain their structural integrity under all conditions of shipment and under conditions of severe impact. Problems that must be considered include containment of a radiation intensity ranging as high as thousands of roentgens per hour on the surface of the elements, high heat output resulting from radioactive decay and the prevention of any accidental conditions of criticality.

The licensee must demonstrate that the mass of fuel shipped will be limited in such a manner that criticality will not occur. (In the unlikely event that criticality did occur, there would not be a nuclear explosion but there could be release of radioactivity in the vicinity.)

One measure required by the regulations to prevent melt-down is to allow the fuel elements to be shipped only after they have cooled long enough to assure that when the casks are loaded the maximum temperature of the fuel elements will remain well below their melting points.

The estimated weight of the casks will range from 10 to 70 tons. One of the casks used by the Commission's Savannah River plant is 19 feet long, 4 feet square on each end, and weighs 70 tons. The cask has lead shielding which is 8.5 inches thick covered with half-inch stainless steel plate.

Carriers and warehousemen are exempt from nuclear material licensing pursuant to Part 70 (Section 70.12), for transporting or storing irradiated fuel elements in the regular course of their business. However, whether the licensee transports the irradiated elements in his own vehicle or delivers them to a carrier he must meet the requirements contained in the proposed regulation.

Under the proposed regulation each licensee making application to transport any number of irradiated fuel elements outside of his authorized location of use, or to deliver such material to a carrier, must submit to the Commission engineering drawings, experimental data and technical references showing that the cask to be used is designed for safety from the standpoint of criticality, heat transfer, shielding and structural integrity.

Recognizing the need for cask design criteria, the Commission distributed to AEC contractors and other interested companies a draft paper entitled "Proposed Licensing Criteria for Shipping Containers for Irradiated Fuel Elements," dated November 28, 1958, and solicited comments. Revisions were then made and were reviewed by representatives of AEC contractors responsible for shipments of fuel elements. Changes suggested by this group were incorporated into the proposed regulations. An Interagency Transportation Committee consisting of representatives from the Atomic Energy Commission, Interstate Commerce Commission, Bureau of Explosives, Federal Aviation Agency, the U. S. Coast Guard, and the Post Office Department, assisted in the formulation of these transportation regulations.

Requirements to protect against possible hazards in the shipment of unirradiated special nuclear materials and against other hazards in the shipment of special nuclear materials are contained in other Commission regulations and in those of other agencies having jurisdiction over transportation of these materials.

New Back–Pain Theory

There's a sound medical reason for the saloon's brass rail, Dr. M. Laurens Rowe told a meeting of the Industrial Health Conference in Rochester, N. Y. Speaking on newer concepts of low back pain, Dr. Rowe pointed out that one way to reduce hyperextension, and consequent low backach.. during long pe-

(Continued on page 28)

HEARING PROTECTION SERIES
Other articles June & Aug.

The Miracle

How it works . . .

How to protect it . . .

How to regain it . . .

How to use it . . .

Sound is one of nature's greatest miracles and one of the world's most fascinating stories. Without it daily living would become incredibly complex and extremely dangerous. Most forms of advanced communication—expressing complicated, abstract ideas—would die away. Some experts claim man would lose his powers of advanced reasoning and revert to a semi-animal state.

Thousands of times each day, sounds of pleasure, warning, and communication play a vital role in our lives. Voice transmission, for example, by means of the telephone, motion pictures, radio, and television continually gives millions of people information and pleasure. In the future we can expect dramatic advances in electronics to bring us new and better devices destined to perfect communication between people. Added to this is the importance of person-to-person contact as a major link in human relations. Yet sound and the marvel of hearing are taken for granted by most of us.

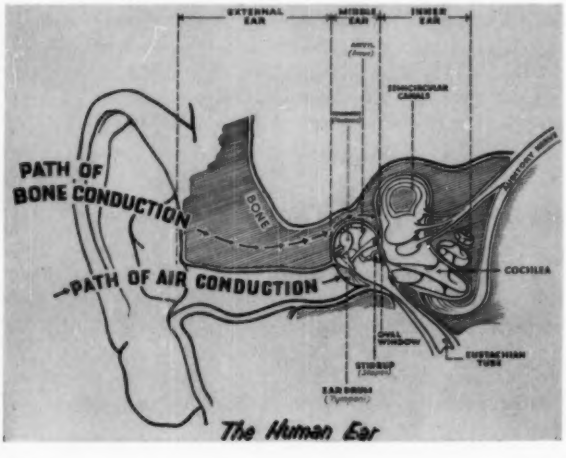
Ancient man regarded sound with special wonder and explained it by supernatural means. A later theory said that sound was an actual object—much like food—and received into the ear just as food was taken into the body.

But it wasn't until modern times that man found out how the hearing process worked.

The ear, one of the body's smallest organs is also one of the most complicated. It is divided into three parts—**the inner, middle, and outer ear.**

The outer ear gathers the sound vibrations and conducts them to the ear drum through a small passage about an inch in length. The ear drum is the dividing line between the outer and middle ear.

The vibrations are then transmitted to the body's three smallest bones—called the hammer, anvil, and stirrup. These are located in the middle ear. Their job is to carry vibrations to the inner ear where they are translated into meaning—noise, music, the rustling of leaves, or falling rain. This area, shaped like a snail shell, is called the cochlea. It is filled with fluid and, although no bigger than the nail on the small finger, contains more than 20,000 hairs.



The Human Ear

The vibrations set the fluid in motion and this in turn agitates some of the nerve hairs. The movement of the hairs sends impulses to the auditory nerve and then the brain. The brain analyzes these and compares them with sound impressions it has stored. This is how we instantly recognize sounds such as a telephone ring or car horn.

In addition to hearing through the ear itself, sounds are relayed to the brain through the jawbone. This is called bone conduction. A good example of this is when we close our mouths and hum. No sound escapes from our mouths yet we clearly hear the humming.

Amazing Versatility

A normal ear can detect a range of sounds from 15 to 20,000 vibrations per second. It can tell the difference between any two of nearly 400,000 distinct sounds and can hear as many as 325 variations in loudness in a single note.

Further, we are able to select from all sounds we hear those which have meaning to us. For example, a man who works in an office hears thousands of sounds, but actually listens when the telephone rings. This selectivity even works when he is asleep and the alarm wakens him.

Although our ears play a vital role in our lives and are amazingly intricate and sensitive, few of us give them much attention. We have our eyes and teeth checked periodically but rarely have our hearing tested.

Yet continual exposure to loud noise can destroy our hearing. Not all at once but gradually, week by week. And the only way the loss can be detected is through a hearing test.

Of course many are exposed to critical noise levels in their daily work. Their sole source of preserving

# of Hearing

their hearing is through the use of ear protectors. Just as goggles will protect a man's eyes on a hazardous job, so ear protectors will guard his sensitive hearing mechanism.

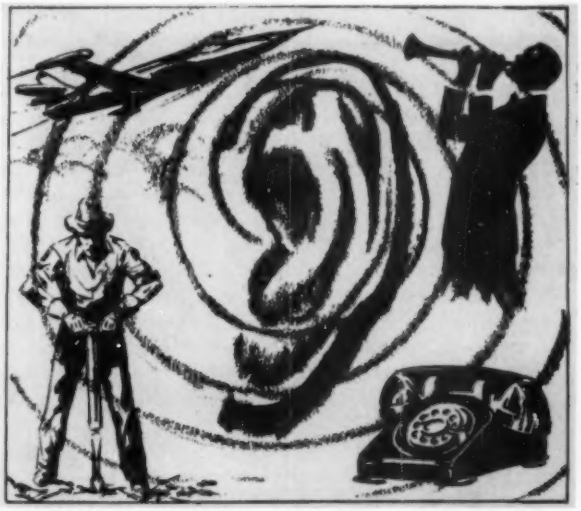
Safeguarding Hearing

For the best protection ear guards should be worn where the noise level is 90 decibels or above. The ear protector acts as a buffer. It keeps the energy, which is produced as a result of noise, from reaching the inner ear and destroying the endings of the delicate nerve hairs.

There are two kinds of ear protectors: the insert type and those worn outside the ear such as muffs and helmets. Both are effective. However, it must be cautioned that size is an important factor in selecting an insert type protector. If it is not properly fitted in the ear canal, its usefulness is greatly reduced. This may be one of the reasons for the increasing popularity of the ear muff type guard which requires little or no fitting. In some cases both types are worn at the same time. Wearing both accounts for an additional 10 to 15 percent reduction of the noise as against wearing any one type protector.

The value of hearing and the need for protecting it should be brought to the attention of plant personnel at every opportunity—through meetings, house organs, and personal contact. Otherwise we risk losing one of our most valuable senses.

Queen Alexandra used the first electrical hearing aid invented to listen to the ceremonies of her own coronation.



Upon hearing, one of our most sensitive and least understood senses, reception of vital communications depends.

Centuries ago when man first discovered hearing losses he devised some peculiar remedies. One of the best known was to have the hard-of-hearing person grind up a few ounces of lion's brain with a pinch of strong oil and insert the paste into the ear.

As early as the turn of the 19th century people were advised to place a roasted fig or hot onion piece into the ear and blow heavy tobacco smoke over it.

Since that time medical science has made tremendous strides. Operations once considered too delicate have been re-popularized due to increased knowledge and technical advances.

Major Hearing Aid Developments

Major advances also have been made in the development of the hearing aid. The first electrical aid was manufactured in 1902 and received world-wide recognition when it was used by Queen Alexandra of England to hear the Coronation ceremony in that year. Its inventor Dr. Miller Reese Hutchison received the "Reward of Merit for Scientific Investigation and Invention" from the Queen. Early hearing aids were huge devices; modern aids are miniature communication systems composed of approximately 160 electronic components. Latest developments are the eyeglass hearing aid and the behind-the-ear model.

Today there are approximately 18,000,000 Americans suffering from some degree of hearing loss. An estimated 9,000,000 could be helped by medical, surgical or mechanical means; but, in spite of the advances in these areas, about 4,500,000 refuse aid. In fact the average person who has a correctible hearing loss waits five years before taking action.

Those of us who are fortunate enough to enjoy good hearing can best protect it by giving quick attention to ear infections, avoiding violent nose blowing, protecting our ears against continuous loud noises and having them checked periodically.

Do You Really Hear?

What is unfortunate is that many of us who have good hearing do not make the best possible use of it.

People speak to us but we don't listen. The average person only absorbs about half of what he hears. Why?

There are many reasons for this. In some instances we think we know what the person is going to say and we only half listen. Other times we divide our attention between what someone is saying and what we happen to be busy with at the time—the radio or the newspaper. Another reason is that our minds will wander from the subject for a moment and an important point may be missed. People also do not hear things because, while someone is talking, they are mentally mapping out what they are going to say in response. A common reason for missing what is being said is that we are looking over our surroundings and the people talking to us instead of concentrating on what is being said.

Concentration, in fact, is the key word in overcoming these listening lapses. Listen to lectures, a television discussion, or have someone read to you. Concentrate on keeping your attention on the topic—not just on the words. Listen for ideas. At the conclusion write down the main points and as much of the supporting material as you remember. Do this continually to keep your listening abilities sharp. When people talk to you, don't let television or the newspaper distract you so that you just half listen.

In this modern world filled with sound, good hearing plays a significant role in our communications with those around us, in our business, and in enjoying life. But unless we listen, we are wasting one of our greatest gifts.

Photos courtesy, Acousticon International, Division of Dictograph Products, Inc.

NEW BACK-PAIN THEORY
(from page 25)

riods of standing, is to place one foot on a low stool or platform. This method of preventing back pain is particularly helpful to housewives with back trouble getting through the week's ironing, he said.

Dr. Rowe outlined a new theory of degenerative disc disease as an explanation of recurrent low back pain, and outlined methods for most effective treatment.

Intervertebral discs serve as positive springs between the vertebrae to keep them pried apart to the full extent allowed by the ligaments in every position of the spine, Dr. Rowe said. This maintains correct alignment of the vertebrae and prevents forward and backward slipping of one vertebra on another. "Long regarded as a simple shock absorber, the disc now emerges as the most important stabilizer of the spine," Dr. Rowe explained.

Cumulative injuries to the disc over a period of years may cause a "blowout" of a gelatine-like substance inside the disc, making it lose elasticity. The vertebrae then impinge on the nerve root, causing back pain. Since, from the normal curve of the spine, most pressure falls on the lower vertebrae, pain is concentrated in the lower back, especially when lifting or twisting the body trunk.

Dr. Rowe gave methods of treatment for this type of back pain, and reported that if the patient avoids severe nerve pressure by these means, he will ultimately lose his back pain and regain stability between the two vertebrae adjoining the degenerated disc. This occurs when sufficient fibrous tissue is laid down across the space formerly occupied by the disc nucleus to produce a scar tissue body-to-body bond between the vertebrae.

In outlining the new concept of back pain Dr. Rowe stressed that other causes must be investigated in all patients since back ache is a "brew of many ingredients blended in varying proportions in each individual case."

Radiation Symbol Approved

A new American Standard Radiation Symbol, N2.1 has been approved and published by the American Standards Association. This standard formally recognizes the puple (magenta) trefoil (three-bladed propeller) on a yellow background as the proper symbol to denote radiation hazards and specifies general rules for its use. Since the immediate recognition of danger is vital to human safety, it is hoped that the radiation symbol will, in time, become as universally identifiable as the red light for stop.

The tremendous growth in the use of radiation and radio-active materials since the war has created widespread concern about the hazards of ionizing radiation. To a considerable extent, the continued use of these materials depends upon the effectiveness of the radiation protective system.

Of paramount importance is the need to identify radiation hazards. Radiation protection specialists have been concerned with this problem since the early days of the huge atomic energy projects at the University of Chicago, Oak Ridge, and other sites. During this time government agencies, industrial concerns, medical groups and other organizations have all been interested in symbols to call attention to source of radiation and radiation hazard conditions. This has culminated in the approval of the new radiation symbol as an American Standard.

It is intended that the symbol be used on signs at the entrance to rooms or areas where sources of radiation are present, on bottles, containers, and packages of radioactive materials, on x-ray equipment or other machines which generate radiation, and on materials or apparatus contaminated with radioactive substances.

The radiation symbol has already received wide acceptance throughout the United States. It has received the approval of the National Committee on Radiation Protection and Measurement and has been recommended in publications of the committee. It has been approved by the following agencies of government, and its use is mandatory for denoting the hazards due to radiation sources which are under the control of these agencies:

U. S. Atomic Energy Commission
California Division of Industrial Safety
U. S. Department of Defense
Colorado Department of Health

Connecticut Department of Health
Maine Department of Health
Massachusetts Department of Labor and Industry
Michigan Department of Health
Minnesota Department of Health
New York Department of Health
New York Department of Labor
Pennsylvania Department of Health
Texas Department of Health

In addition, other governmental agencies have regulations in draft form which, when approved, will require the use of the symbol.

The symbol has also been adopted in one form or another by numerous industrial, educational, research, medical, and other organizations which are engaged in radiation work. It has been used in connection with feature articles about radiation in both popular and trade magazines. It has been seen on television programs, has appeared on book covers, and has been the subject of newspaper editorials. All this indicates that much has already been done to educate the public in the meaning and use of the symbol.

American Standard N2.1-1960 specifies that the radiation symbol shall be used to signify the actual or potential presence of ionizing radiation and to identify objects, devices, materials or combinations of materials which emit ionizing radiation. For the purpose of this standard, ionizing radiation includes gamma and x-rays, alpha and beta particles, high speed electrons, neutrons, protons, and other nuclear particles; but not sound nor radio waves, nor visible, infrared or ultraviolet light. The standard does not specify the radiation levels at which the symbol is to be used.

Developed under the sectional committee methods of ASA procedures, the standard has been sponsored by the Atomic Industrial Forum, Inc. Sixteen manufacturing and user organizations from industry and government were represented on the committee which drew up the standard.

American Standard Radiation Symbol, N2.1-1960, is available at 50 cents per copy from the American Standards Association, Dept. PR156, 10 East 40th Street, New York 16, N. Y.

Controlling Noise Hazards

This six-page bulletin issued by the Labor Department's Bureau of Labor Standards contains valuable information on noise. Noise is not a new problem in industry, but recognition that loss of hearing, due to working in a noisy industrial environment, is an occupational disease has focused attention on noise.

Bulletin No. 207 discusses the characteristics of sound in terms of frequency and intensity and enumerates factors that determine the harmful effect of noise. It explains how a noise survey can be made and suggests ways of controlling noise.

Copies are for sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., at 10 cents a copy. Single copies are available, without charge, from the Bureau of Labor Standards while the supply lasts.

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(For details, use Key # T-6 on card on page 1)

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Are Industrial Dust Problems

Is silicosis really licked?
Is control keeping pace with new materials?
Is dust control increasing the air pollution problem?

The control of industrial dust is a very old problem. Its techniques are by now a time-honored art, but the dust problems of today are still of paramount importance to the public health and industrial safety worker. The basis for dust control remains health, safety, comfort and prevention of economic loss:

Dust diseases still constitute a danger to health. About three and one-half percent of the occupational diseases reported in California for 1958 involved dust. Even though this number is small, it accounted for over 600 cases in 1958 and represents a serious problem for the industries concerned. To this must be added a small number of specific diseases whose causes are otherwise classified but which are in part at least attributable to dust. For example, some of the lead poisoning in the storage battery or printing industries is the result of lead dust.

Discomfort from excessive dustiness is frequently an important consideration in situations where workers or neighbors are exposed to dust concentrations below the recognized toxic levels.

Safety hazards arise from dense dust clouds interfering with visibility on the job. Such dust concentrations aggravate existing accident hazards.

Severe monetary loss can be caused by uncontrolled industrial dust when damage occurs to electrical equipment, machinery and paint, when crops are damaged, and when real estate values are lowered.

Historically, dust has always ranked with smoke as the first process to come under control in the prevention of occupational disease and air pollution. The reasons are not difficult to find. Dust is a visible hazard, there for all to see. It is associated with the basic processes of all industry: mining, quarrying, crushing, grinding, polishing, sizing, mixing, sacking, and transporting. It is little wonder that dust was recognized as a cause of disease even before a scientific basis for the relationship was established. Most governmental industrial hygiene programs and most occupational disease laws began with the recognition of dust diseases.

Dust Can Be Controlled

The progress to date is a tribute to the pioneers in this field and the thousands of people who have followed them. Technologically there is no reason for anyone to be exposed to dust concentrations producing silicosis, asbestosis, or other recognized dust diseases. Control methods have been developed for the protection of the worker. The application of present knowledge is sufficient to eliminate these hazards. Furthermore, technology has advanced to the point where such controls are acknowledged to be well within the framework of modern industrial economics. Rare indeed is the dust problem today whose solution can justifiably be considered financially prohibitive.

Both management and labor recognize this. Industry is continually seeking better and cheaper ways to solve its dust problems. Where management is lax in this regard, the labor force is quick to call attention to the matter.

Further Control Needed

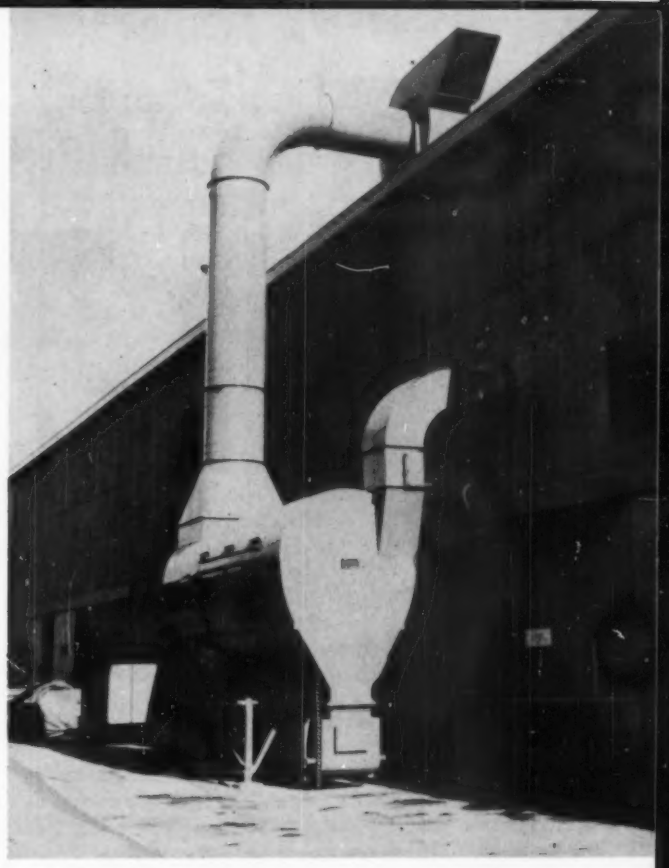
Why, then, must we give consideration to this problem? Has it not become a matter of the routine application of known procedures? At first glance this would appear to be the case since dust diseases constituted such a small percent of the occupational diseases reported, for example, in California in 1958.

Nevertheless, in the Bureau of Adult Health, the State Department of Public Health's industrial hygiene agency, 25 percent of the field studies undertaken over the past two years were concerned with dust. Only half of these were mineral dust, the traditional dust control problem. Metallic dusts, radioactive dusts, insecticides, plastics, grain and others required nearly as many investigations as did mineral dust. The State and local air pollution agencies and the Division of Industrial Safety also found themselves involved in a considerable number of dust problems.

It would appear, then, that **the virtual elimination of silicosis has not brought to an end the demand for extending the control of industrial dust.** What are the new factors which keep our dust problems occupying such a prominent place in the industrial health and safety picture?

The rosy picture just given of the technological competence and of enlightened industry and labor is, of course, somewhat at odds with the facts. A few problems are proving difficult to solve satisfactorily: **all management has not yet acknowledged responsibility; there still exist workers indifferent to, or ignorant of, the hazards of their occupations.** But these are not new problems; they are the remnants of the old.

Increasing ?



by GEORGE J. TAYLOR
Supervising Air Sanitation Engineer
Bureau of Air Sanitation
California State Department of Public Health

Furthermore, there are people who are susceptible to dust; people for whom the protection for ordinary workers is inadequate. When exposed to dust concentrations tolerated by the average person for many years, these individuals succumb to dust diseases. When I first became interested in the control of dust, in a large mining enterprise, I was struck by the wide difference in the reactions of individuals to the dustiness of their occupations. Silicosis was our problem. Its control was the sole object of the dust control program of the company. Among the "old timers" with 12, 16 or 20 years' service, some evidence of silicosis was common—often it was severe. We came to look upon 12 to 15 years' service as about the length of time at which to expect silicosis to develop—with a few cases in as short a time as 10 years. Yet there were men who had worked at some of the dustiest occupations in the mine for 18 and 20 years without showing any symptoms. On the other hand, one man developed a marked degree of fibrosis after only two and one-half years, and another showed symptoms of silicosis in only 18 months. Examination of the medical records showed that neither of these individuals had shown signs of silicosis at the time of employment nor had he a history of particularly dusty occupations before coming to work.

Doctor Jethro Gough has pointed out that rheumatoid arthritis, or the tendency toward rheumatoid arthritis, has a marked effect on the development of pneumoconiosis. For workers with a tendency toward arthritis the effects of dust are very much accelerated. **Our present maximum allowable concentrations may prove to be inadequate for the protection of such persons. The control of industrial dustiness cannot forever remain geared to the dust concentrations safely tolerated by a "normal" worker or an average individual.** Susceptible individuals will find their way into the dusty trades and some degree of protection must be afforded them.

Professor Theodore Hatch has pointed out that our dust control practices have so far been aimed at the prevention of specific dust diseases—silicosis, asbestosis, etc. In general, these efforts have been amazingly successful. Throughout the nation and most of the world, heavy silica dust exposures are rapidly being brought under control. Silicosis, however, is a serious disease, permanently damaging the body. Its control was a first priority objective of industrial hygiene. With the gradual reduction of this prevalence of silicosis, the effects of **lower** dust concentrations are being recognized. Adverse health effects, less permanent and less specific than silicosis, are being found.

Dust control efforts of the past have been directed toward maintaining the productivity of the workers by preventing permanently incapacitating or fatal dust diseases. We must now evaluate health effects at a more sensitive level **to maintain the general health** of those employed in dusty trades.

New Dust Problems

Some dusts produce allergic reactions which are either of industrial importance or which account for much individual suffering. Cotton dust and some plastics have produced troublesome industrial problems. Pollens constitute a dust problem of nonindustrial origin which bids fair to be with us for a considerable time to come.

The industrial hygienist is continually confronted with new industrial materials, or sudden expansions in use of old but little-used substances. Some of these problems have arisen with surprising rapidity and present a challenge to the industrial health worker. Most of us have followed the discovery, development,

and resolution of the beryllium dust problem during the war years and the diatomaceous earth problem in the postwar period. Each of these necessitated an intensive effort to resolve the question of toxicity, devise accurate methods of measurement, and develop practicable controls. In both instances the efforts were successful and these substances have become routine industrial hygiene problems.

Insecticides, because of their rapid development and change, are more or less perpetually in the category of new problems. Much the same situation exists in the case of the ever-changing plastics industry. Currently, interesting new problems are developing with respect to borax dust, formerly believed to have little toxic effect, and the new epoxy resins which produce violent allergic reactions. Toxic thresholds and control methods for these substances are yet to be worked out.

The gradual control of the major dust diseases has permitted another secondary reason for dust control to occupy an increasingly important place in our considerations—the comfort of the workers. Employees today are aware that dust can be successfully prevented from contaminating the workroom. They are aware that it can be a factor in their continued health. Hence clean, dust-free work areas are demanded by the workers in many industries. Clean working conditions become a type of fringe benefit conducive to a more satisfied and stable labor force. Management, too, has taken a new attitude toward clean air and pleasant surroundings. Better understanding of ventilation and dust control has made dust-free workrooms an attainable objective in formerly dusty industries. Modern dust-control practices are being built into new and expanding plants.

Air Pollution Problems

Let us turn for a moment from the workroom environment to the general atmosphere, where another dust problem is receiving renewed attention. The dust from industrial and agricultural sources is an important factor in air pollution. Particulate matter from aluminum, lime, gravel, cement, charcoal, and other industries has created nuisances and damage on neighboring properties. Often the air pollution effects occur without the development of conditions hazardous to the workers within the plant. Fluoride dust and fumes from steel mills, fertilizer plants, etc., seldom represent a fluoride hazard to the workers, but much agricultural damage can occur over a wide area around these industries due to the extreme toxicity of fluorine to vegetation and the tendency for fluorine to accumulate in leaves and grass to a point where it is toxic to cattle.

Cement plants without adequate control of dust from their stack effluent, although relatively free of dust exposures of health significance, produce dust discharges which render neighboring land unfit for habitation and seriously interfere with agriculture.

These air pollution problems complicate dust control by imposing especially severe requirements on the dust-collecting equipment. The exhaust ventilation installed to prevent contamination of the workroom may be found to be a source of air pollution outside the plant. It is not sufficient to collect the dust from some industrial processes and discharge it outside, however high the stack. Air pollution control may require over 99 percent efficiency in the removal of particulate matter before a dust-collecting system can be allowed to discharge to the atmosphere.

The effects of these discharges, while frequently local, are sometimes evidenced over wide stretches of countryside. The adequate cleaning of dust-laden air streams presents a challenge to the best efforts of engineers engaged in the control of particulate matter.

Secondary sources of dustiness, seldom involved in dust concentrations of interest to the industrial hygienist, are frequently of considerable importance in air pollution control. In addition to the effects of the dust discharged from the collectors, neighborhood complaints are lodged against the dust clouds from roadways and equipment yards, stock piles of dusty materials during dry windy weather, open conveyors outside plants, and waste material dumps. Most of these problems are small and local in effect, but, until permanent satisfactory solutions are in general use they will continue to occupy the hygienist's attention.

Isolation is no longer sufficient protection against the necessity for industry to provide air pollution control equipment. For example, the astonishing increase in the population of California has had its effects in even the most rural and remote areas. Suburbs have expanded into the country engulfing once comfortably isolated industrial plants. Small communities have sprung up in the vicinity of rural industries which have never before had to consider the effects on neighbors of their waste discharges.

Furthermore, many rural industrial plants were once the sole economic base for some small communities. The workers were born and raised and spent their lives in the town, tolerant of the dust or smoke because their livelihood depended on the productivity these discharges represented. Such is no longer the case. The school teacher, the barber, the filling station operator would prefer that the community air be free from smoke and dust. The workers themselves feel that it is not necessary to breathe the dust and smells of their jobs in their homes. And especially their wives object: they object to dirty wash on the lines, to dust settling in their houses and to the possible harmful effect polluted air may have on their children.

It is becoming increasingly difficult, therefore, for industry to discharge particulate wastes into the atmosphere. The populous counties are organizing to prohibit it. Even in the small counties the boards of supervisors, the health officers and the community leaders are responding to a growing clamor to secure a safe and clean atmosphere.

From all this what may we conclude? Three things seem to be arising from the present-day trends: first, continuing research into the health hazards of new industries; second, higher standards of dust control—an increasing effort to determine the relationship of dust to human health and the continued effort to improve our standards; third, improved standards for dust discharges to the atmosphere—in the interest of air pollution control.

From an address presented at the 1960 California Governor's Safety Conference. Picture by courtesy of Dust Suppression & Engineering Co.

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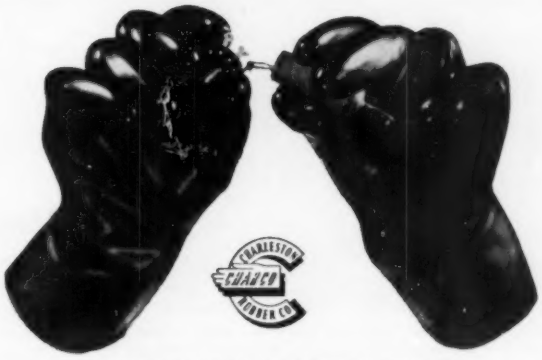
OUTSTANDING HAND PROTECTION



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(For details, use Key # T-9 on card on page 1)

AEC Proposes Safety Rules for Radiography

The Atomic Energy Commission has announced a proposed regulation to formalize radiation safety requirements for persons using sealed sources of by-product material (radioisotopes) in radiography.

The regulation is designed to spell out in AEC regulations the exact conditions under which personnel and equipment may be used in testing materials through the production of an image on a radiation-sensitive surface such as a photographic plate. The use of radioactive isotopes for photographing welds, castings and similar materials for flaws has increased markedly in the past year because of their low cost and growing availability. Approximately 420 radiographers have been licensed to use by-product materials in their operations.

Inasmuch as multimillicurie through multicurie quantities of by-product material are involved in radiography, and operations are conducted in the field as well as in the radiographer's plant, adequate safety precautions must be exercised.

Currently, licenses to use by-product materials in radiography are issued under the general provisions of AEC regulations, and applicants are required to submit complete and detailed descriptions of their operations and emergency procedures for inclusion in the license.

The proposed regulation is designed to minimize the need for routinely placing special requirements in each radiography license and to assure that each licensee understands his responsibilities for conducting a safe radiography program.

A new regulation to be known as Part 31, "Radiation Safety Requirements for Radiographic Operations," Title 10, Code of Federal Regulations, covers equipment control, radiation safety requirements for radiographic personnel and precautionary procedures in radiographic operations. The regulation sets up rules for permissible levels of radiation for radiographic exposure devices and storage containers; locking of radiation exposure devices; storage precautions; radiation survey instruments; leak testing, repair, tagging, replacement and disposal of sealed sources; quarterly inventory; and utilization logs.

Sulfur Chloride Data Sheet

Safe handling procedures for sulfur monochloride and sulfur dichloride are described in chemical safety data publication SD-77 (Sulfur Chlorides) recently issued by the Manufacturing Chemists' Association.

The publication includes detailed information on properties, potential hazards, engineering control of hazards, employee safety, fire fighting, storage, tank and equipment cleaning and repair, waste disposal, medical management and first aid procedures pertaining to the sulfur chlorides. Copies of SD-77 are available at 30 cents each from the Association. Address: 1825 Connecticut Ave., N. W., Washington 9, D. C.

A mechanical hand that enables persons with paralyzed hands to perform many daily tasks is demonstrated by its inventor, Dr. Arthur J. Heather (left), and Charles Daniels (right), engineer who assisted in designing it.

New Life for Paralyzed Hands

Today a person with paralyzed hands can look forward to picking up a pencil and writing, to lathering his face and shaving, to eating with fork or spoon and to using a telephone—all this, thanks to an ingenious new "hand."

Developed under a grant from the Easter Seal Research Foundation, the device is the work of Arthur J. Heather, M.D., medical director of the department of physical medicine and rehabilitation of the Eugene du Pont Memorial Hospital, Wilmington, Del. The device, which weighs only six ounces, is hydraulically operated by tap water and any part can be replaced at the cost of only a few pennies.

Already two patients who are paralyzed in all four limbs are being trained at the du Pont hospital in the use of the mechanical hand, thus offering hopes for useful lives to those paralyzed by accident, stroke, polio and other causes.

Dr. Heather, the inventor, describes the hand as giving the patient "a three jaw chuck type grasp with the activating mechanism placed either on the arm of a chair or in any position to enable him to open the hand."

He says: "The total weight of the apparatus is six ounces. However, the portion of the hand attached to the patient weighs only four and one half ounces. The hydraulic system is filled with tap water and the master and slave cylinders are made of nylon."

That the hand will withstand years of wear has been demonstrated in the tests described by Dr. Heather as follows: "One of the hands was placed in a cycling machine and operated continuously for a period corresponding to 26 years' use by the patient. At the end of this run, there was no loss of fluid; and in fact, the cylinders acted more smoothly after prolonged use.

"As far as the components are concerned, about the only thing that will wear out over prolonged use are the O-rings in the slave cylinder and the plastic tubing. The O-rings may be replaced for a cost of about 12 cents and the plastic tubing would cost approximately 30 cents to replace. The rubber fingertips used in the hand are attached to the finger units with a specially designed adhesive material. We estimate the finger units may be replaced at a cost of about 50 to 60 cents each."

The grant which made possible development of the hand is one of many grants from Easter Seal funds contributed by the public to provide care, treatment, and education for crippled children and adults as well as research into causes of crippling and ways of preventing and alleviating handicapping conditions.

Atmosphere Sampling Standard

In recent years there has developed a tremendous interest in the air around us. Contamination of air resources has led engineers, scientists and other technologists to re-evaluate "free air" not only from the industrial point of view but also from the health and safety standpoint.

In recognition of the need for standardized sampling procedures, analytical methods, definitions, etc., the American Society for Testing Materials organized its Committee D-22 on Atmospheric Sampling and Analysis. As a result of the committee's work the first complete compilation of the standards on Atmospheric Sampling and Analysis is now made available. There are 12 standards including 2 recommended practices, 9 methods of test and 1 on definitions.

The Contents are:

Test for Concentration of Odorous Vapors—(Adsorption Method)

Methods for Continuous Analysis and Automatic Recording of the Sulfur Dioxide Content of the Atmosphere

Def. of Terms Relating to Atmospheric Sampling and Analysis

Rec. Practice for Planning the Sampling of the Atmosphere

Method for Measurement of Odor in Atmospheres (Dilution Method)

Rec. Practices for Sampling Atmospheres for Analysis of Gases and Vapors

Test for Inorganic Fluoride in the Atmosphere

Test for Nitrogen Dioxide and Nitric Oxide Content of the Atmosphere—(Modified Griess-Ilosvay Reaction

Test for Oxides of Nitrogen in Gaseous Combustion Products—(Phenol-Disulfonic Acid Procedure)

Test for Particulate Matter in the Atmosphere (Optical Density of Filtered Deposit)

Test for Oxidant (Ozone) Content of the Atmosphere

Test for Odor in Industrial Water and Industrial Waste Water

Copies of this book may be obtained from ASTM Headquarters, 1916 Race St., Philadelphia 3, Pa. at $2.25 each.

THIS MAY SAVE A LIFE

In response to unprecedented demand, the material on the following two pages is reprinted from the February, 1960 issue of SAFETY MAINTENANCE in a form convenient for posting at first-aid stations, medicine cabinets, etc.

Another Editorial "First"

from

SAFETY MAINTENANCE

AMERICA'S PIONEER INDUSTRIAL SAFETY MAGAZINE

EST. 1901

HOW to use them
WHEN to use them

DO THIS FIRST!

- Send for a doctor immediately.
- Keep the patient warm.
- Do not force any liquids if the patient is unconscious.
- Determine if patient has taken:
  A POISON—not meant to be taken internally,
  AN OVERDOSE—of a drug.
- While awaiting doctor, give proper counterdose

. . . FOR POISONS

Acids - see box 18
Antifreeze - see box 9
Bichloride of Mercury - see box 12
Camphor - see box 1
Carbon Monoxide - see box 16
Chlorine Bleach - see box 8
Cleaning Fluids - see box 17
Disinfectant
  with chlorine - see box 8
  with carbolic acid - see box 6
Fluorescent Tube Powder - see box 1
Food Poisoning - see box 11

THIS COULD SAVE A LIFE

Paste on door of medicine cabinet

WHAT COUNTERDOSES TO USE

For Poisoning and Overdoses

1 Induce vomiting with an emetic such as Tablespoon of mustard, or Soap & warm water, or Salt & warm water, or Finger in throat.	2 Give a mixture of: 2 tablespoons of powdered burnt toast 1 spoon milk of magnesia, 4 spoons strong tea. Induce vomiting. (See #1)
3 Give mixture as in #2. Induce vomiting. (See #1) Give 2 tablespoons epsom salt in 2 glasses of water. Then give large quantities of hot coffee or strong tea.	4 Give 2 ozs. thick starch paste — made by mixing cornstarch & water. Then give 2 ozs. salt in quart of warm water. Drink until vomit fluid is clear. Finally, give glass of milk.
5 4 oz. hydrogen peroxide. 1 tablespoon sodium bicarb in quart of warm water. Then give 4 oz. mineral oil. **Positively do NOT take vegetable or animal oil.** Induce vomiting. (See #1)	6 Give 2 tablespoons whiskey in 8 spoons warm water. Next give glass of milk or whites of 2 eggs. Then give hot tea or strong coffee.
7 Diabetics can go into shock with insufficient or too much in-	8 Give 1 teaspoon of aromatic spirit of ammonia in glass of water.

Gasoline, Kerosene - see box 17
Insect & Rat Poisons
with arsenic - see box 2
with sodium fluoride - see box 14
with phosphorus - see box 5
with DDT - see box 11
with strychnine - see box 15
Iodine Tincture - see box 4
Lye - see box 10
Mushrooms - see box 11
Oil of Wintergreen - see box 9
Paint (Lead) - see box 11
Rubbing Alcohol - see box 9
Turpentine - see box 17
Washing Soda - see box 10

. . . FOR OVERDOSES

Alcohol - see box 9
Aspirin - see box 9
Barbiturates - see box 3
Belladonna - see box 15
Bromides - see box 11
Codeine - see box 13
Headache & Cold
Compounds - see box 9
Salicylates (aspirin) - see box 9
Morphine, Opium - see box 13
Paregoric - see box 13
"Pep" Medicines - see box 2
Sleeping Medicines - see box 3

. . . INSULIN SHOCK - see box 7

Loosen clothing, keep patient warm. Call doctor or nearest hospital; **do nothing more.**	Hot coffee or strong tea plus egg white.
9 Give mixture as in #2. Induce vomiting. (See #1) Give tablespoon of sodium bicarb in quart of warm water. Give strong tea or coffee.	10 Give 2 tablespoons vinegar in 2 glasses of water. Then give white of 2 eggs or 2 ozs. of olive oil. **Do NOT induce vomiting!**
11 Induce vomiting. (See #1) Give 2 tablespoons epsom salt in 2 glasses of water. Then give large quantities of hot coffee or strong tea.	12 For each tablet swallowed give white of 2 eggs in glass of milk. Give mixture as in #2. 1 oz. epsom in pint water.
13 Give mixture as in #2. 2 tablespoons epsom salt in 2 glasses of water. Keep patient awake.	14 Give 2 tablespoons of milk of magnesia. Give glass of milk. Induce vomiting. (See #1)
15 Give mixture as in #2. Induce vomiting. (See #1) Give artificial respiration if necessary.	16 Rush victim into fresh air. Make patient lie down. Hot coffee or strong tea.
17 Induce vomiting. (See #1) Give 4 oz. mineral oil. Hot coffee or strong tea.	18 Give 1 oz. milk of magnesia in large quantity of water. **Do NOT induce vomiting!**

Copies of this insert, imprinted with your company name for quantity distribution to your employees, are available at nominal cost.

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American Cancer Society

Learning The Hard Way

KINK MAKES ACCIDENT LINK

Some parts had been taken into a cleaning shed for cleaning with a steam hose. Because of a kink in the hose, it would not quite reach far enough. While holding the nozzle in his right hand, the employee whipped the hose with his left hand to remove the kink. The whipping action turned the nozzle, spraying his body with the steam and water mixture. He lost control of the hose and suffered first and second degree burns. It was found that both his gloves and the hose were wet and somewhat greasy so that he had been unable to maintain a firm grip. Rubber aprons and safety goggles should be worn during steam cleaning, and gloves and hose should be kept free of grease and oil.

CATCHY CUFF

A truck had a small trailer hitched on behind. As an employee was alighting from the rear of the truck, the cuff of his trousers caught on the handle of a portable generator. Gravity took over. Result: A fall from the truck and an injured knee cap when it struck the trailer hitch. It's a sound safety rule, but one that's not sufficiently enforced, that people engaged in handling materials, working from vehicles, etc., should not have cuffs on trousers. Ladders or steps at the rear of trucks also help prevent the numerous accidents associated with jumping from the trucks.

MIXED SIGNALS

In a chemical plant, the piping to several tanks was being removed. The pipefitter in charge told his helper and a welder to burn the bolts off a valve. They did so, the valve came apart, and caustic sprayed out over both men. While safety goggles prevented injury to their eyes, both received chemical burns on their faces. It was found that the helper had misunderstood which valve was to be worked on. Basically the situation shows the need for better communications between the members of a crew. Other precautions should include the tracing of lines, wearing protective equipment. Here, color coding and also temporary marking of equipment for dismantling would be helpful.

DISCOURAGING, ISN'T IT?

In this safety-conscious age it seems almost incredible that this type of fatality could occur. An employee of a fruit orchard was spraying trees with a mixture of lime, sulphur and parathion. With no sort of protection whatever and after being saturated with the spray, he died from acute parathion poisoning. Through respiratory protection and safety clothing, every precaution should be taken against inhalation, ingestion and contact of spray materials with the skin. Safety measures also include complete cleanliness.

AIR HOSE ACCIDENT

A maintenance man was repairing a small timing mechanism. To blow the dust out of a small electric motor which he was holding in his hand, he used an air hose and compressed air at about 100-lbs. pressure. A small metal object ricochetted from the motor and penetrated the man's abdomen. The causes of this accident were using compressed air with excessive pressure, failure to recognize the danger, and inattention. Compressed air lines, although a useful tool, can be extremely dangerous and require definite precautions: 1. Avoid use for cleaning equipment that has a rotary action that could be activated by the air stream; 2. Do not use for cleaning chips or shavings from machines; 3. Do not use for cleaning dust, chips or dirt from clothing or any part of the body; 4. Do not use for cleaning objects held in the hand; 5. Employees should always wear safety goggles and other protective equipment when using compressed air.

Amateur Missilemen A Menace

Amateur rocketeers have been warned that their space age experiments are proving to be a dangerous pastime. A group of safety experts said that deaths, serious injuries and severe property damage have resulted from the promiscuous building and launching of rockets by non-professional space enthusiasts.

The Special Hazards Committee of the Association of Casualty and Surety Companies said that because of the many hazards involved and the general lack of qualified supervisors, these amateurs "are literally playing with dynamite."

The committee urged the more than 10,000 members of the nation's rocket clubs to switch their attention from live model experiments to research and study programs. It called for extreme caution and close supervision by qualified personnel in all cases where experimentation progresses to the stage of fuel development or the actual firing of rockets.

The National Fire Protection Association, the committee said, receives reports with such regularity that there is no doubt this teen-age "scientific experimentation" is not yet adequately regulated and controlled.

Two Examples

Two recent incidents illustrate this point.

In one, a 13-year-old boy was killed when he and some friends tried to convert an empty carbon dioxide cartridge into a rocket. The boys stuffed the cartridge with match heads, inserted a wooden match for a fuse, and loaded it into a length of pipe.

The missile struck one boy sitting 50 feet away, killing him immediately.

In another incident, a 17-year-old high school senior was critically burned by an explosion in the basement laboratory in his home. His mother said he was working on a rocket, and police found chemicals used in amateur rocketry at the scene. The explosion inflicted third degree burns over 75 percent of his body and tore out an eight-foot section of brick in the house. The boy's father said his son had always been "extremely cautious."

The committee described interest in rocketry as highly commendable and said it should be encouraged and constructively guided.

But it warned: "Fuels being compounded as propellants can be compared in energy value to high explosives. Pound for pound, some of the fuels have more energy than T.N.T. Others contain the essential ingredients of gunpowder.

"They all ignite readily, burn or explode violently with the evolution of intense heat and can build up high pressures when confined. They definitely are not materials to be handled indiscriminately by either children or adults."

The committee also pointed out that in many communities the possession or use of propellant ma-

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terials constitutes a violation of local ordinances.

The Special Hazards Committee, which regularly investigates and reports on potentially dangerous new activity or technique, suggested these measures intended to eliminate uncontrolled experimentation:

1. Hazards should be publicized through the news media, through youth and parent groups and through schools.

2. Merchants should discourage, insofar as possible, the purchase by minors of materials known to be used in rocket fuels.

3. Parents should make certain that their children are not experimenting with explosives without adequate supervision.

4. Actual rocket firings should be restricted to designated firing ranges under the direction of qualified persons who are familiar with the hazards involved.

5. Youth rocket clubs and amateur rocket groups should register with qualified organizations such as the American Rocket Society and should regularly report their activities for appraisal before experimentation or firings take place.

6. School administrators, newspaper editors and similar individuals should acquaint themselves with recognized local rocket groups so that the experimenters, inquiring about their own rocket experiments, can be directed to such groups for advice and guidance.

Old-Fashioned Injuries Still Lead

Despite dramatic dangers of the modern Space Age, old-fashioned slips, falls, and materials handling still rank as the chief causes of work injuries, Secretary of Labor James P. Mitchell has noted in issuing a new publication, "Control of the Physical Enviroment."

Part of the U. S. Labor Department's "Safety in Industry" bulletin series, the new brochure briefly details procedures by which management may safeguard physical enviroment—"the foundation on which every successful safety program is built."

Inspect Facilities

Before improvements are undertaken, the bulletin recommends a complete plant survey to check such factors as the condition of the building and facilities, plant layout and access, flow and handling of materials, control of hazardous materials and processes, and related enviromental exposures including lighting, noise, ventilation, heat and humidity, and vibration.

"Familiarity with the plant may mean that hazards go unrecognized," the pamphlet states, and recommends an experienced "outsider" on the survey team. Buildings should be structurally safe for present or future use: those designed for light manufacturing, for example, may not be strong enough for heavy storage.

In plant layout, placement of machinery and equipment should be so planned as to avoid backtracking and crisscrossing and allow space for operators, materials, necessary moving about, and scrap removal.

Aisles and passageways should be designed as "an important highway system" with main traffic roads and feeder lanes. Inadequate lighting, according to some authorities, causes from 15 to 25 percent of all industrial injuries and should be improved to meet American Standard Practice for Industrial Lighting. As an implement to good lighting, color should reflect light on walls and ceilings and elsewhere identify hazards and equipment, such as red for fire protection equipment, yellow for caution, purple for radiation, etc.

Equipment Safety

Attention is called to recognized standards of machine guarding, care of tools, and preventive maintenance of equipment. Detection of hazards through studies of the flow of materials through the shop or the survey of processes is illustrated by means of charts in the brochure.

Control measures for common material hazards arising from corrosiveness, toxicity and flammability are cited. Methods of eliminating hazards associated with processing include substitution of a safer method, enclosure of toxic processes, automatic feeding of machines and mechanical handling instead of manual handling.

Sample copies of the 13-page brochure (Bulletin 211) may be obtained without charge, so long as the supply lasts, from the Bureau of Labor Standards, U. S. Department of Labor, Washington 25, D. C.

Flammable Liquid Tank Vents

Fire fighters put their lives in jeopardy every time they attack a fire involving an improperly vented flammable liquid tank, according to an article published by the National Fire Protection Association.

A total of 41 firemen from both public and private fire departments have been killed in the past five years in just five incidents, it is cited by Miles E. Woodworth, NFPA flammable liquids engineer writing in the Association's Quarterly Magazine.

In each instance above-ground tanks storing flammable liquids ruptured or exploded because emergency vents designed to relieve pressure were too small or improperly designed.

How these disasters can be avoided is detailed in the article, which points out that NFPA Flammable Liquids Code requirements provide safeguards for hazards encountered in tank fires.

The lessons of these fires "are clear cut and the fire record proves the hazard to fire fighters," the article declares. "Unless more fire fighters are to be needlessly killed, regulatory officials and the owners of flammable liquid storage tanks must take action now."

Reprints of the article, "Inadequate Vents on Flammable Liquid Tanks," are available (25 cents each) from the National Fire Protection Association, 60 Batterymarch Street, Boston 10, Mass.

THE FIRE FRONT

New Extinguisher for All Fire Classes

For the first time in history there is a fire extinguisher which will put out all types of fires. G. E. Manning, chief engineer of Underwriters' Laboratories, told the recent meeting of the National Fire Protection Association that his organization had tested and accepted for listing the revolutionary new development.

The extinguisher will do an effective job of quenching the three principal types of fires—those in combustibles like paper and wood, those involving flammable liquids like gasoline, and fires in electrical equipment.

Up to this time the many kinds of extinguishers have been able to handle one and sometimes two classes of fires, but never all three.

While the new extinguisher is effective on all three, it does not supplant other extinguishers which may have superior quenching powers on a particular type of fire, it was explained.

Manning said that since the new extinguisher uses a form of dry powder or chemical, it is all the more remarkable because previously "dry chemical extinguishers have not been effective on deep-seated fires in ordinary combustible materials like wood and paper."

"Water has been used for so long to put out this class of fire that one instinctively questions the effectiveness of a powder," he explained. But the fact is that water is not always available in large enough quantity in a portable extinguisher, and its cooling effect is further reduced by run-off.

The new extinguisher uses a non-caking and moisture-repellent dry chemical which expands into a sort of rubbery mass when exposed to heat. This action tends to smother the fire. The chemical was developed in Germany.

Manning predicted this discovery would lead to other significant developments in extinguishers in the near future.

At the same session other speakers, including two from Great Britain and Germany, reported recent developments in foam, compressed gas and dry chemical extinguishing agents.

April Losses Exceed Last Year's

Estimated fire losses in the United States during April amounted to $98,106,000, the National Board of Fire Underwriters has reported. According to Lewis A. Vincent, NBFU's general manager, this loss represents an increase of 8.2 percent over losses of $90,689,000 reported for April 1959, and a decrease of 15.7 percent from losses of $116,365,000 for last March.

Losses for the first four months of 1960 now total $404,202,000, an increase of 0.7 percent over the first four months of 1959, when they amounted to $401,402,000. These estimated losses include an allowance for uninsured and unreported losses.

How Many Watchmen?

Enough protection personnel should be employed to cover the entire plant or building with hourly rounds during the nights and days when the plant is idle. This "rule of thumb" for determining the number of watchmen required is proposed by Detex Watchclock Co. Many plants, commercial establishments and institutions can be adequately covered by the guards, with only one working each shift.

Since constant walking for more than forty minutes at any one time results in excessive fatigue and lower efficiency, enough guards should be employed so that each man can cover his assigned route in forty minutes, allowing ample time to check valves, windows, doors, lights, etc. A company should employ additional men rather than cut down on the guard's rest period or omit any building from his route.

In industrial plants—particularly those engaged in defense production—sufficient daytime guards must be provided at all entrances not kept locked, to check the entrance and exit of all employees, trucks, and visitors. All vital and restricted areas must be adequately covered.

Extra Duties

A guard is not a janitor. Cleaning and sweeping are not a part of his duties. Any time devoted to them detracts from the safety of the plant. He should not be expected to perform such work, except, perhaps, in very small plants where it is possible for him to complete his rounds in 30 minutes or less. In such cases, he might be expected to devote up to 10 minutes per hour on extra duties.

Causes and Factors in Large Loss Fires

There are probably well over 1,000,000 fires each year. Statistics on the causes of these fires are available and it is commonly known that matches and smoking and the misuse of electricity are the most frequent causes.

Information on the cause of fire is useful, but the custom of assuming that the cause of fire and the

cause of loss are one and the same thing has come into being even though there is little relationship between the two, warns a special bulletin of the National Board of Fire Underwriters.

Fire is the result of an ignition source coming into contact with flammable material. In order to determine how fires are started it is necessary to know both the cause of ignition and the material that is ignited. Thus if a lighted match is thrown into a pile of rags and a fire is started, the lighted match is the cause of ignition or cause of fire and the rags, the material ignited.

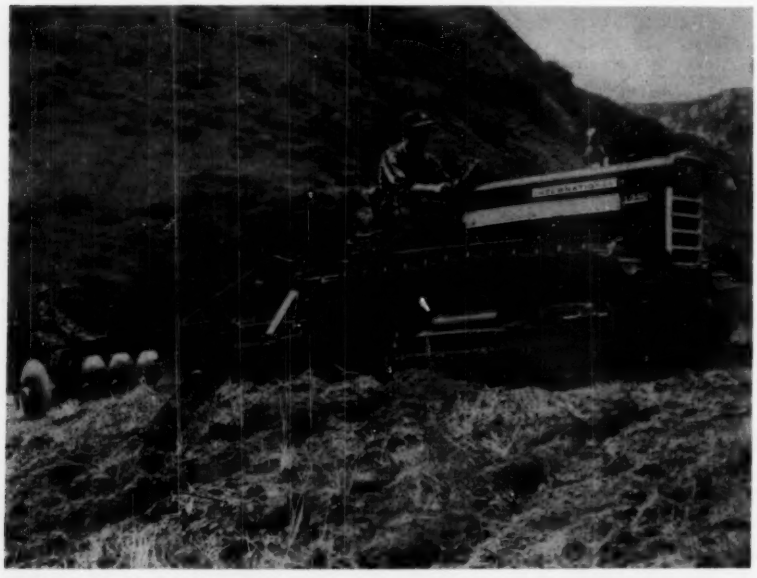
While knowledge of how fires start is obtained from statistics on the causes of ignition and the material ignited, **these items do not tell us why the small fire becomes large or causes substantial losses** except in the relatively rare instances where the ignited material was a chemical which exploded or was a valuable item such as a tapestry which could be damaged by a small fire.

If the rag fire referred to above was started when someone was nearby, it would probably be discovered quickly and action to extinguish it would shortly follow, so little, if any, loss would be sustained. However, if the fire was started by the last person to leave a building, it might grow until a part or all of the building is involved. *Discovery* of such fire would probably be *delayed* and this would be a factor responsible for a large loss.

In addition to delayed discovery, other factors such as large undivided area, unprotected floor openings and highly combustible contents may exist and also be responsible for a large loss. A number of factors are responsible for a large loss fire in many instances.

In order to improve our knowledge of why small fires become large, it is necessary to develop statistics on the responsible factors. The National Board has prepared a list of such factors for the purpose of developing the necessary statistics. This is given in the column that follows. As experience is gained in using the list some changes may be needed in order to obtain statistics that are useful and meaningful.

It is generally recognized that insufficient private fire protection equipment is another important factor in large loss fires. However, no such factor appears in the list because of the problems in developing information on it suitable for statistical purposes.



FIRE FIGHTERS—Los Angeles County Weed Abatement Control District No. 4 of Val Verde, Calif., uses two crawler tractors, equipped with three-point hitches, to pull heavy-duty disk harrows in brush fire abatement work. The units are used on a year-round basis to destroy weeds and brush that present a fire hazard. Brush fires occur frequently in many areas during the dry California summer and their control is made easier with the use of this equipment. Property destruction is kept at a minimum through constant application of the weed control program.

Picture by courtesy of International Harvester Co.

CLASSIFICATION OF FACTORS

1. Building location as it affected fire fighting
2. Buildings and Structures
   a. Large undivided areas
   b. Roof collapse
   c. Concealed spaces
   d. Collapse of firewalls and other walls
   e. Floor collapse
   f. Unprotected floor openings
   g. Unprotected structural members
   h. Special hazard areas not cut off
3. Poor Housekeeping
4. Poor Maintenance
5. Poor Warehousing
6. Highly Combustible Interior
   a. Interior construction and finish
   b. Contents
7. Sprinkler Systems
   a. Fire originated in unsprinklered section of sprinklered risk
   b. Sprinkler system shut off at time of fire
   c. Distribution of water obstructed
   d. Sprinkler performance inadequate due to maintenance failures, ruptured piping or slow operation of system
   e. Other miscellaneous factors
8. Performance failures by watchmen and other employees
9. Fire Department
   a. Manpower and training
   b. Performance failures with facilities, including poor generalship
10. First Alarm Response
   a. Apparatus responding inadequately.
   b. Building heavily involved upon arrival of first alarm response apparatus
11. Fire Department apparatus and equipment failures
12. Delayed Discovery
   a. Detection by outsider, police or other persons not connected with risk
   b. Other miscellaneous factors
13. Delayed or confused alarm
14. Delayed Access
15. Water Supply Deficiencies
16. Adverse climatic conditions

Tanker, with 25,000 barrels of oil and gas aboard, moored not far from Houston shore tanks. More than 10 million gallons of expanded air foam was poured on ship to prevent city-rocking explosion.

FOAM TAMES TANKER FIRE

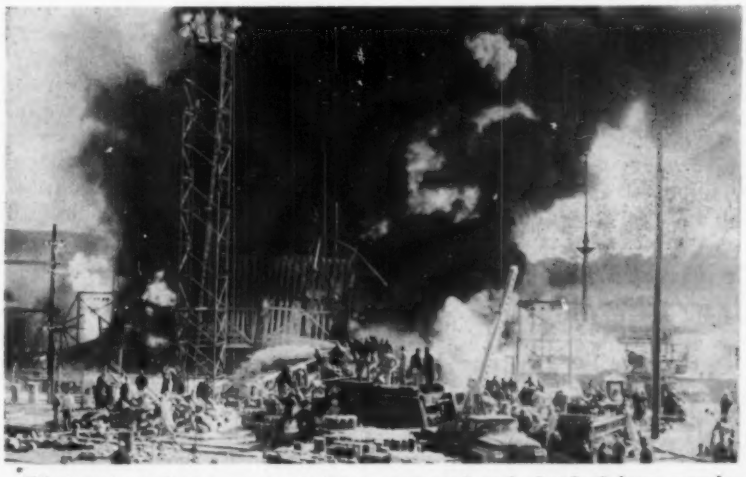
Need shown for knowing how and where to get emergency supplies of fire fighting compounds.

At **Houston, Texas,** last fall, while thousands of area residents tensely watched ominous mountains of black smoke billowing up to the sky, a determined 500-man disaster crew fought a grim, almost day-long battle with a menacing ship fire.

The 20,000 ton tanker **SS Amoco Virginia** was taking on a cargo of fuel oil and gasoline when, at 1:30 a.m., she was hit by fire. The ship belched flames for 18 hours. All the time, worried safety officials feared that her fuel cargo would erupt in a major explosion, hurling red hot embers on shore-edge fuel storage tanks. If the shore installations went up, heavy casualties and widespread havoc were anticipated.

Fate and a tremendous amount of rugged firefighting work spared Houstonians and the many industrial concerns that have large facilities clustered along the banks of the busy inland shipping artery. The dogged fight of the disaster crew prevented the dreaded "big explosion."

The hundreds of fire fighters in



Filled and emptied cans of air foam compound and chemical foam powder as they were stacked high on dockside during 18-hour Houston fire battle.

successfully containing and quelling the dangerous blaze used expanded air foam as their chief weapon. An estimated 10,000,000 gallons of expanded air foam were applied in checking the fire.

Local newspapers, reporting the details and sidelights of the $6 million fire, have praised highly the performance of the fire fighters and the effectiveness of air foam.

Could Have Ended Earlier

The papers, quoting statements made by Houston Fire Chief C. M. Bullock and Lcdr R. J. Evans of the U. S. Coast Guard, have subsequently come out to say that the fire could have been ended in 3 instead of 18 hours had larger quantities of air foam compound and chemical foam powder been available when the battle to extinguish the fire first began. When the need was broadcast, the Coast Guard, Civil Defense, Air Force and area industries all rushed supplies of compound and powder to the scene. The fire, however, had already been burning for three hours before the larger stocks of air foam compound and chemical foam powder began to arrive.

Because the local supply of air foam compound was greatly reduced during the 18-hour fire fighting effort, a safety threat, particularly to industrial firms, still existed after the fire was extinguished. A Houston distributor, the Heitmann, Bering-Cortes Company, helped relieve the situation by arranging quickly for a carload shipment of 3% and 6% air foam compound to be rushed to the city. The compound was delivered in less than 48 hours.

Emergency Supplies

The vast majority of modern fuel-handling and fuel-storage facilities that dot this country are excellently fire protected—many with latest types of automatic fire control systems. Yet, on the coast (as in the case of the **Amoco Virginia** fire) or inland, fire departments will encounter large or prolonged emergencies that will necessitate the fast procurement of extra supplies of air foam compound. Departments should have in their records, for reference in such emergencies, information on where the compound can be secured, whom should be contacted, and how fast delivery can be made. Information on the supply sources for air foam compound can be furnished by manufactures of the compounds and their local representatives.

Pictures by courtesy of Fyr-Fyter Co.

When fire breaks out, flames don't wait for people to read instructions on how to use portable fire extinguishers. It's important that everyone knows how to effectively operate the portable fire extinguishers in your plant. The Fire Equipment Manufacturers' Association, Inc., adds that these extinguishers must be properly maintained and ready for use at any time. Check your extinguishers. Fire prevention is an every-day responsibility for everyone.

Electrical Fires

Tired electrical appliances and wiring cost the American public more than $38,300,000 yearly. This is the loss in nearly 30,000 fires caused each year by electrical equipment of all types which has simply worn out in service, according to estimates just reported by the National Fire Protection Association.

The international non-profit fire safety organization analyzed five years of incidents to determine chief causes of electrical fires, which destroy an average of more than $136,800,000 worth of property annually, in about 106,000 fires.

At the top of the list is worn-out equipment—from home refrigerators and industrial motors to house wiring and commercial building panel boards—which is responsible for approximately 28 percent of all such fires.

In second place is improper use of equipment which itself meets safety standards—using a UL-listed light extension cord where a heavy-duty cable is required, for example. This type of carelessness causes about 14,900 fires each year at a cost of $19,155,000.

Another kind of carelessness, labelled "accidental occurrences," is credited with about 12,800 fires and damage of more than $16,400,000 yearly. This covers such incidents as fires caused by clothes left in contact with lamps, dropping materials into electrical equipment, and heated appliances left on unintentionally.

Fourth major cause is equipment installation not in accordance with the National Electrical Code, which is responsible for losses of more than $15,000,000 a year in about 11,700 fires.

In the five-year period (1954–1958) studied by the National Fire Protection Association, electrical fires rose from an estimated 94,100 to 117,100 annually while losses almost doubled, from $95,400,000 to $183,500,000.

Large Loss Fires—What Do They Cost?

Major fires during the past year cost Americans more than ever before in history, the National Fire Protection Association reported at its annual meeting.

Over $356,000,000 worth of buildings, industrial installations, transportation equipment, forests and other property in the United States and Canada was wiped out in 410 "large loss" fires in 1959.

The total, exceeding the previous 1957 high by more than $6,500,000, **shows a daily loss of close to one million dollars.**

On 73 occasions, one million dollars or more went up in smoke in a single fire.

Only fires with individual losses of a quarter million dollars or more are included in the analysis, made annually by the NFPA Fire Record Department.

Estimates reported earlier by the international fire safety organization indicate that in 1959 over 2,000,000 fires of all sizes destroyed close to $1,400,000,000 worth of property in the two countries.

Of last year's 410 major fires, 364 occurred in the United States, with a loss total of more than $331,000,000. The cost of 46 fires in Canada was just over $25,000,000.

While the 410 major fires included in the analysis represent in

(Continued on page 48)

Watchmen as Safety Inspectors

15 HAZARDS FOR PLANT GUARDS TO WATCH FOR, AND 9 TIPS TO KEEP THEM SAFE WHEN LOOKING

A list of the 15 principal plant safety hazards has been published by Pinkerton's National Detective Agency as a guide to the sort of thing that uniformed guards should be on the lookout for.

And should you want to make sure that your guards do not themselves get hurt in the process, the Agency has thoughtfully added a list of 9 pointers to help keep the after-hours guard out of trouble.

It's all part of the guard-training program of Pinkerton's, which handles thousands of installations for business and industry.

Making his rounds of duty, the security guard should watch out for—correct if possible; at least report—these common hazards to safety:

- **Slippery floors**
- **Tripping hazards, such as hose lines, piping**
- **Inadequate warning signs at excavations, manholes**
- **Missing (or inoperative) entrance, exit lights**
- **Poorly lighted stairs**
- **Loose handrails or guard rails**
- **Aisle or street obstructions blocking access of fire equipment**
- **Overheated motors**
- **Loose or broken wiring**
- **Open fire doors**
- **Running motors not in use**
- **Defective ladders or scaffolding**
- **Leaks or unusual fumes**
- **Broken windows or doors**
- **Dangerously piled supplies or equipment**

And to speed the guard on his appointed rounds as safely and effectively as possible, guards should observe the following precautions:

- **Don't attempt to make rounds after dark without a good flashlight**
- **Look for obstructions and low-lying ground hazards, such as wires, piping and supports**
- **Take your time; don't take short cuts . . . you are more effective as a guard if you proceed slowly and look around**
- **Go around obstructions and not over them**
- **Be careful of loose boards and unstable platforms**
- **Avoid slippery surfaces**
- **Look where you walk**
- **Don't run downstairs, and always use the handrail**
- **Be careful climbing ladders; check ladders before using them**

Picture by courtesy of Western Electric Co.

Large Loss Fires

(from page 46)

number only a fraction of one per cent of all fires during the year, they were responsible for over 25 percent of the entire dollar loss. And these loss totals, points out the NFPA, do not take into account the tremendous indirect waste and consequences of fire which cannot be measured in money.

Of the 410 fires reported, 340 involved buildings of all types, refineries and outdoor industrial facilities, with total losses of $179,363,000.

There were 47 major transportation fires, all but one involving aircraft. The dollar loss was $138,990,000, and these accidents were responsible for 135 fatalities.

The cost of 23 big forest fires was $38,069,500.

A rise in large losses occurred in all principal classifications, according to the NFPA report.

Industrial Fires

Major industrial fires in 1959 numbered 113, contrasted with 85 during the previous year. Dollar losses were up about $6,150,000 to a total of $58,400,000.

There were 89 **major store fires,** a rise of 8, with losses totaling about $38,600,000, which was an increase of approximately $1,450,000. This is the fifth consecutive year major store fires have shown a rise.

The cost of **major warehouse fires** nearly doubled, jumping from about $21,100,000 in 1958 to almost $40,500,000 last year. In number the increase was from 43 to 54.

Sharpest increase was recorded in **major church fires,** where losses went up more than 150 percent. Total cost of 10 such fires in 1959 was more than $3,000,000, compared with losses of about $1,160,000 in just four fires the previous year.

Cost of 18 **major fires in school and college** classroom facilities was almost $7,000,000. Fires which destroyed a college-used dormitory and an auditorium added another $2,100,000 to educational property losses in 1959, bringing the total to just over $9,000,000. This was a rise of approximately $2,500,000 from the previous year.

In **major transportation fires,** 46 aircraft were destroyed with dollar losses at almost the $133,000,000 mark. A marine tanker fire added another $6,000,000 loss in this classification. Compared with the previous year, large transportation fires were down in number by eight, but the cost increased about $5,200,000.

Major forest fires jumped sharply to a total of 23 with losses in excess of $38,000,000. This compared with nine fires during the previous year, when the loss was just under $7,000,000.

Inadequate Control

According to the NFPA analysis of building fires, both construction weaknesses and absence of protective sprinkler and alarm systems were the principal reasons why minor fires were not stopped before they became major losses.

Automatic sprinkler protection would have prevented the high losses in 283 out of the 331 building fires. In 270 cases discovery and fire department notification were delayed because there were no sprinklers, alarm systems or watchmen.

Structural weakness ignoring fire safety standards included missing division walls, unenclosed stairways and elevator shafts. These were major factors in allowing fire to spread throughout the building instead of confining it near the area of origin.

The key to elimination of such major losses, said the NFPA, is proper design of buildings and other structures, and use of protection equipment like automatic sprinkler and alarm systems.

Largest Loss

The largest single fire loss in either the United States or Canada during 1959 was the fire during take-off of a B-58 bomber at Carswell Air Force Base, Texas, on September 16. Damages totaled $24,000,000. A B-52 fire at Castle Air Force Base, California, cost $14,400,000 and there were three other aircraft fires in which each loss came to $10,000,000.

Aside from aircraft, the fire and explosion which shook Roseburg, Oregon, on August 7 caused the largest single property loss. In this disaster 256 buildings were destroyed or damaged at a cost of $10,000,000.

Canada's largest single loss was the destruction of a terminal warehouse of Pictou, N. S., on July 6, where damages totaled $1,680,000.

Geographical Distribution

Of the 331 large loss building fires, 289 occurred in the United States, 42 in Canada.

States with the largest numbers were Pennsylvania with 32, New York 22, Michigan 21, California and New Jersey 19 each, Illinois 16, Maryland and Texas 9 each.

In Canada, the Province of Ontario had 18 large loss building fires, Quebec 8, British Columbia 5 and Nova Scotia 4.

Of large loss transportation fires, 46 occurred in the United States, one in Canada.

The United States recorded 22 major forest fires, Canada only one. Fifteen of the forest fires occurred in California, three in Alaska, two in Oregon, and one each in Arizona and South Dakota.

Venezuela Sends Good Neighbor to Study USA Safety

A young safety inspector, Maximo Ezeiza, for the Mene Grande Oil Company of Ciudad Bolivar, Venezuela, has been sent to the United States for four months of intensive study of safety in industry.

Sr. Ezeiza is expected to return to his native country on completion of his study knowing more about the cause and prevention of industrial accidents than most older men in Venezuela.

He has been sent to the United States by his company, the Venezuelan subsidiary of Gulf Oil, and is the first such official to be offered training in safety in the United States. His seven classes

cover courses in safety personnel, the functions of management and supervisors in accident prevention, industrial hygiene and occupational diseases, principles of safety inspection, etc.

In making this arrangement, Gulf Oil once again is demonstrating its consistent application of the good neighbor policy with special emphasis upon the prevention of accidental injury.

American Standards Price List and Index

The 1960 Price List and Index of American Standards, published by the American Standards Association, lists nearly 1,900 American Standards that have been approved to date. The fields covered include automotive, chemical, civil engineering and construction, drawings, symbols, abbreviations, electrical engineering, metallurgy, materials handling, mechanical engineering, mining, nuclear, photography and motion pictures, paper, petroleum, rubber, textile, wood, safety, gas appliances and some consumer goods. Also listed are the international standards recommendations of the International Organization for Standardization and the International Electrotechnical Commission.

The American Standards Association is the clearinghouse for voluntary national standardization.

The Price List and Index may be obtained, without charge, by writing to the American Standards Association, Dept. PR 151, 10 East 40th Street, New York 16, N. Y.

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Industry's Most Vital Tool

(from page 7)

least hazardous or about which the worker assumes the attitude, "I'm not dumb enough to get my hand caught in there"—it's a different story.

Another problem is that the worker may be wearing the wrong type of glove for the job he is doing. It is possible that even a wrong glove may be better than no glove at all, but unfortunately the worker may believe he is being protected from certain solutions and neglect additional hand care measures that would be required if he were not wearing gloves.

That's a direct route to dermatitis, which accounts for about two-thirds of all occupational disease claims under United States compensation laws. The annual tab for that is in the vicinity of $100-million.

What Will Gloves Cost?

It makes sense for a firm to have a sound glove policy. One accident or occupational disease that can be traced to lack of gloves could easily cost more than a protection program for your entire organization.

The continuing trend is that the employer furnish gloves especially designed for specific jobs and insist that the employee wear them.

The responsibility of the glove industry lies in the production of quality products that provide dependable hand protection at lowest costs. With improved formulations, materials and designs, today's industrial gloves are capable of providing the protection required in the many new processes being developed by industry.

The glove industry's standards of quality, developed through costly research, testing, inspection and improved production techniques, have also extended the service life of industrial gloves far beyond those produced in the pioneering days of the industry.

How to Select Gloves

To realize these benefits, gloves must be selected on the basis of function. All responsible glove manufacturers retain qualified specialists who are responsible for helping you select the right glove for the specific job.

There are charts indicating the glove material that will perform best in specific chemicals. The glove manufacturer will advise on the style found to be most suitable for certain jobs, and will run tests to determine which of the available glove materials will provide the best service in particular solutions.

Performance factors also must be considered in glove selection, as indicated in the accompanying pictures.

For example, will the product to be handled require a high degree of touch sensitivity or will it be highly abrasive, have sharp edges?

Purchase of an "all purpose" glove for both of those jobs initially might be cheaper, but obviously impractical over the long-run operation.

And would it provide the basic element of true protection?

Industrial gloves are the first line of defense against serious occupational hazards to workers' hands. **At any cost, they are still the cheapest form of safety insurance.**

Remember those figures from the National Safety Council . . . **$377 for hand injuries . . . $314 for injuries to thumbs and fingers.**

A realistic glove budget certainly makes more sense than continually rising compensation costs and insurance rates.

Pictures by courtesy of The Wilson Rubber Co.

NEW ROOF SEALER

Leaks or cracks in roofs can be fixed with Wet Weather Seal-Kote, from Paramount Industrial Products, even if the roof is still wet. A liquid asbestos roofing compound, the product cuts through water, even standing puddles, to seal cracks and holes permanently. The company reports that sealer won't blister, crack, run, sag or tear, even in extreme temperature changes. It may be applied during a rainstorm, and without draining the water, and requires only to be brushed on.

For details, use **Key # BM-1** on inquiry card on page 1.

HEAT RESISTANT COATINGS

Availability of Heat-Rem H-170 in 18 high heat resisting colors that can be applied on surfaces previously regarded as "too hot to paint" is announced by Speco, Inc. The new coatings, depending on the shade used, are reputed to permit color coding or complete finishing of metal components subjected to temperatures from 600° to as high as 1700°. Typical applications include heat transmission lines, traps, stacks, vents, condensors, compressors, ovens, engine heads, mufflers, radiators, exhaust manifolds, jet missile tubes, rocket motors, pressure furnaces, etc.

Most of these colors contain a combination of aluminum and a special metallic pigment. Unlike ordinary aluminum, non-leafing particles are said to remain equally distributed and in constant suspension with the pigment throughout the H-170 vehicle and provide uniform coverage in the applied coat. This is reputed to make possible virtual fusion of the paint with hot metal surfaces. In addition, the bright, elastic Heat-Rem finish is resistant to moisture, corrosion, mild acids, alkalis and industrial fumes.

For details, use **Key # BM-2** on inquiry card on page 1.

AIRLESS SPRAYING SYSTEMS

New airless spraying systems, developed by Binks Mfg. Co. for in-plant and maintenance painting, are said to drastically reduce overspray in comparison with air powered systems. Most jobs can be done without the need for shutting down production lines. Two basic systems are offered, a 55 gallon, and a 5–10 gallon outfit. With either system, paint is taken from the original container through the Pacer 300 high pressure pump. It

Building Maintenance Developments

delivers working pressures up to 3000 psi, when necessary, and supplies enough material to fill two spray guns if needed. Pacer 300 is a 30–1 ratio pump that delivers high working pressures developed by low input air pressures.

Each system comes equipped with hose, pump, agitator, elevator, fluid manifold and strainer and spray gun. May be operated from plant compressed air systems, or air from one of several Binks' portable compressors. Minimum and maximum operating air pressures (input to pump) are 35 to 110 psi.

The 55-gallon unit fits directly on a 55-gallon material drum. The 5–10 gallon unit fits on a 10-gallon container into which a 5-gallon container may be placed. In either system, the material containers are not pressurized.

For details, use **Key # BM-3** on inquiry card on page 1.

EPOXY REPAIR MATERIAL

Virtually unlimited industrial repair jobs can be handled with a new epoxy-polyamide chemical compound, Plastic Mastic, produced by Williamson Adhesives, Inc. Practical and economical for repairing floors, walls, ceilings, driveways, curbs, masonry, bricks, machinery, fixtures, tanks, pipes, plumbing, furniture, and for filling leaks, breaks, holes and cracks, the material is permanently effective with almost every known material such as concrete, metals, wood, ceramics, glass, rubber, cloth, paper products and most plastics.

Equal parts of base and hardener, supplied in a General Repair Kit, are mixed with a trowel or spatula to a neutral gray composition.

The mix can be formed to a fine edge and, in its cured form, can be sanded, drilled and machined to a smooth surface. It is nonflammable, contains no volatile solvents, and said to have virtually no irritation potential. It combines the toughness, hardness and durability characteristics of epoxy and polyamide resins.

For details, use **Key # BM-4** on inquiry card on page 1.

CHUCK-HOLE FILLER

A road and driveway repair material that can be applied in almost any kind of weather has been developed by the Monroe Co. The product, Zor-X, repairs chuck-holes easily and quickly, requiring only to be tamped down. It can be used even in an area that is wet, or in temperatures as low as 15° above zero, and driven over immediately. This road, parking lot and driveway repair material can be used by street departments, and commercial and industrial companies.

For details, use **Key # BM-5** on inquiry card on page 1.

NEW VACUUM SYSTEM

Cleaning of boiler tubes, long recognized as a sensible safety and maintenance procedure which reduces fuel consumption, is speeded and simplified by use of vacuum. As shown in photograph, an outlet of the installed vacuum cleaning system, a product of the Spencer Turbine Co., is conveniently located for this use. Many companies report that fuel savings in the neighborhood of 20% result from regular attention to this often overlooked maintenance routine. Use of vacuum is generally preferred because the operation is then considerably cleaner and appreciably faster.

For details, use **Key # BM-6** on inquiry card on page 1.

LATEX-CEMENT PATCH

A fast self-curing, easy-to-mix product for repairing everything from a crack to a big hole in concrete or masonry, has been developed by The Flintkote Co. Latex

Cement Patch assures a tight, non-shrinking bond, tough, non-brittle toppings, and reduces shrinkage to a minimum, the manufacturer reports. A general purpose compound which requires no primer and needs but a trowel or spatula to apply, it was especially formulated for use in area patching of concrete floors, walls, structural parts, beams, columns, foundations, curbs, railings and even complete surface refinishing from 1/16 inch up in thickness. The product also serves as an easy working mortar for pointing up joints, filling cracks in masonry construction, repairing spalls or breaks, for levelling surfaces in machinery replacement or correcting bad drainage.

For details, use **Key # BM-7** on inquiry card on page 1.

CENTRAL VACUUM SYSTEM

Factory cleanliness, to prune maintenance costs while achieving better production efficiency, can be achieved with Lamson Corporation's Exidust Central Vacuum Cleaning System. It consists of five components—cyclone type primary dust separator, secondary bag type separator, exhauster and motor unit, piping system, and fixed pick-ups or flexible nozzles. It handles dry clean-cut metal and plastic chips. The fixed pick-ups, fastened on machine where chips are formed, collect waste automatically. System, which has a capacity ranging from 3 to 100 hp., has three big housekeeping advantages, according to Lamson: (1) safely gets rid of machine chips, especially flammable-like plastics; (2) keeps machine free of chips, thereby lessening downtime or operational wear; (3) salvages scrap for re-sale or reworking.

For details, use **Key # BM-8** on inquiry card on page 1.

WALL CLEANING MACHINE

A noiseless and dripless wall and ceiling cleaning machine, reported capable of cleaning 100 square feet in six minutes, is being marketed by the Alan Mfg. Co. Lightweight and non-electrical, the Wall-King consists of a dryer; two rust-proof magnesium trowels; two 20′ sections of non-kinking rubber hose, which join the trowels to the solution tanks; and dual solution tanks of stainless steel which hold 2 gallons of special liquid cleaner. They are held together within one frame, with a convenient carrying handle in the center. The machine is said to leave no streaks or splotches, and to eliminate problems of splash protection. It requires no previous experience to operate.

For details, use **Key # BM-9** on inquiry card on page 1.

LIQUID COMPOUND FOR DRAIN PIPE CLEARANCE

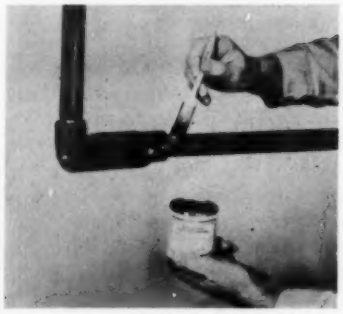
Bingo Drain Pipe Opener, an institutional stand-by for many years, is now available in liquid form from the manufacturer, Huntington Laboratories Inc., and is expected to provide greater effectiveness and handling ease for the user. The compound quickly dislodges slime, hair, coffee grounds and other trouble-makers from pipes and plumbing fixtures. For convenience, Liquid Bingo is packed in a non-breakable plastic bottle which is re-usable. Safety as well as speed is provided in this drain pipe opener; product will not damage glass, metal or porcelain when used as directed.

For details, use **Key # BM-10** on inquiry card on page 1.

MOBILE TRASH RECEPTACLE-INCINERATOR

A combination incinerator-trash receptacle, manufactured by The Alsto Co., features wheels and a handle so the unit may be pulled to a safe area and contents burned without emptying. It is expected to minimize hauling and handling of trash. The unit permits trash to be burned safely outdoors within 10′ of buildings and may be used inside or outside as a waste receptacle. Front wheels swivel so the unit may be pulled in virtually any direction. It will burn waste paper, packing, cartons, sweepings, food scraps, rags—burnable refuse of all kinds, to a fine ash in any weather. Scientific draft control burns damp, green or dry refuse without fire danger and nuisance of burning, blowing bits of paper. Burner minimizes smoke and smell and requires no watching. Constructed of rust resistant aluminized steel, unit features large hinged hood for fire protection and easy loading. Six bushel capacity.

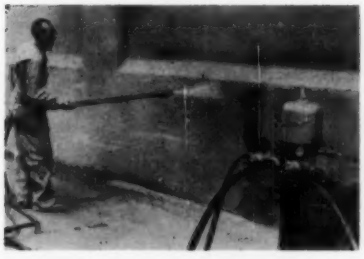
For details, use **Key # BM-11** on inquiry card on page 1.



CORROSION-RESISTANT COATING

Acids, alkalies, greases, and oils do not affect Plastic-A-Coated Condulets, anti-corrosive coatings produced by Crouse-Hinds. The product is a black plastic coating; a tough, corrosion-resistant material which adheres to the condulet surface and has good resistance to abrasion. Coated products of this kind can be installed without losing the protection of ground continuity or impairing the safety of explosion-proof apparatus. Plast-A-Coat touch-up compound is available to cover exposed areas in threads and cover joints. By using this compound on cover joints and hub joints, the installation can be sealed against the corrosive agent.

For details, use **Key # BM-12** on inquiry card on page 1.



SPRAYED ALUMINUM VAPOR BARRIER

A new liquid metallic siding in a range of colors that both waterproofs and insulates in one coat, is announced by Pace Products, Inc. Called Aluma-Chron, this product combines the durability and insulation of aluminum, and the appearance of a conventional, decorative outside paint. It provides a vapor-proof barrier, impervious to moisture. The product contains pure aluminum flakes that reflect the sun's rays to substantially reduce summer building temperature, and, in winter, act inversely to keep heat inside the building. Suitable for cement and cinder block constructions, asbestos cement siding, quonset buildings, metal cribs and tanks —where it also rustproofs.

For details, use **Key # BM-13** on inquiry card on page 1.

VINYL EMULSION PAINT

A new flat vinyl latex emulsion finish has been added to its Snolite line by Pittsburgh Plate Glass Co. It is furnished in white only but may be tinted to any desired color with PPG's Universal Tinting Colors. Application of the easy-to-use, fast drying finish may be by brush, roller coating or spray. One coat covers most surfaces. The new product is packaged in drums, 5-gallon and gallon containers.

For details, use **Key # BM-14** on inquiry card on page 1.

PICK-UP BROOM FOR MOBILE EQUIPMENT

A pickup type broom for most makes of hydraulic loaders and fork lift trucks features a large capacity (6 cubic foot) hopper and fits in place of loader bucket or clamps on fork lift tines. Sweepster cleans a 5′ path, putting bottles, paper cups, straws, sand and other debris in a hopper which can then be raised by the loader or fork lift to dump into trucks. Optional gutter brush available for sweeping along walls and parking barriers; a sprinkler system also available for dust control. Driven by a hydraulic motor which is powered by the loader or fork lift hydraulic system, the unit utilizes quick couplers on oil lines to facilitate easy, clean installation. Manufactured by Sweepster, Inc.

For details, use **Key # BM-15** on inquiry card on page 1.

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(For details, use Key # T-13 on card on page 1)

CHEMICAL & SALT SPREADER

Made of unbreakable polyethylene, this versatile lawn spreader from Federal Tool Corp. may be used to plant seed and weed killer in the warm weather, and spread salt over walks and driveways during the winter months. The Greenmaster is rust and corrosion proof, weighs only about a fourth as much as the average metal spreader. Fingertip control over flow of contents. Implement is acid and water resistant, easy to clean, and requires no oiling.

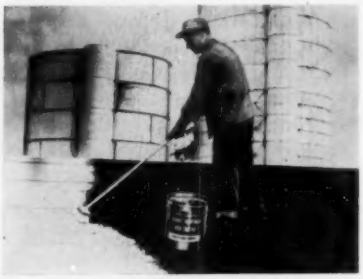
For details, use **Key # BM-16** on inquiry card on page 1.

REPAIR SEALER KIT

A sealer kit consisting of twenty-four individually packaged units of epoxy sealer—each containing enough material for a typical repair job—is available from Epoxylite Corp. The sealer in the #1-S kit combines outstanding electrical insulating properties and high chemical resistance with tenacious adhesion to almost all materials. It may be applied in any desired thickness and will cure overnight at temperatures above 70 F, or in just a few minutes with heat lamps.

The sealer will bond to most metals, glass, ceramics, most plastics, rubbers, stone, wood, concrete, etc. The bond is waterproof, weatherproof, shock and impact resistant, and serves from —65 F. and below to above 200 F. The product may be used to renew damaged blocks of electrical insulation, to seal cables, pipes, and splices, to join dissimilar materials, to protect components from chemical attack, etc.

For details, use **Key # BM-17** on inquiry card on page 1.



LIQUID ALUMINUM COATING

A new Alcoa aluminum pigment is used in the manufacture of Revco Liquid Aluminum Coating from Revere Chemical Corp. Coating is said to reduce below-roof temperatures as much as 20°. Brighter and longer-lasting, it forms a shield that deflects the sun's rays, turning back 71% of the sun's heat.

For details, use **Key # BM-18** on inquiry card on page 1.

THERMAL INSULATION CEMENT

A castable quick-set, one-coat insulation cement, available from Thermold Products Co., can be handpacked, troweled, injected, palmed, sprayed or poured to any thickness without shrinkage. In addition, the set or dried material may be reused. This cement is reported capable of withstanding freezing temperatures with no deteriorating effects. It is non-rusting and non-corrosive to metal and materials. The product may be applied to such hard-to-cover materials as fiberglas board, rock cork board, foam glass block, rock wool blanket, etc., without the use of hex wire. It will not shrink, blister or drip, and will provide a smooth hard finish. Pre-molded jackets for pipe fittings can be made in two pieces and easily applied.

For details, use **Key # BM-19** on inquiry card on page 1.

MASONRY WATER-REPELLENT

An improved silicone type masonry water-repellent, Hydrocide S-X Colorless Hycon (R), said to provide a marked improvement in water repellency and durability, is offered by Sonneborn Chemical & Refining Corp. It is especially resistant to the destructive alternating freeze-thaw cycles. The company reports tests were conducted on the premise that water absorption increases upon continued exposure to freeze-thaw cycles, regardless of product or concentration of the application. The level of water absorption in masonry to which the new product was applied showed virtually no change over the entire span of exposure.

For details, use **Key # BM-20** on inquiry card on page 1.

DEEP PENETRATION PAINT REMOVER

Development of a brush-on, water rinsable paint remover that remains wet and workable for a day or longer, and thus strips deeper and more completely, has been announced by Turco Products, Inc. A single coating of Turco 4377B is usually sufficient to completely remove up to ten layers of unwanted paint.

Non-flammable, the product meets the corrosion requirements of MIL-R-8633A and is safe and noncorrosive on all common metals. It effectively and completely removes a wide range of finishes (paint, varnish, baked varnish, lacquer, zinc chromate primer, baked enamel, automobile synthetic en-

amel, air-dry synthetic enamel, baked urea alkyd coatings, etc.) under the most adverse weather conditions in a simple brush-on, rinse-off operation. No surface agitation is normally required. Turco 4377B operates on the bond-release principle, i.e., its quickly penetrating solvents plunge through multiple paint coatings to the base metal, where they exert their loosening and lifting powers to break the bond between paint and metal.

For details, use **Key # BM-21** on inquiry card on page 1.

LIQUID CRACK SEALER

A new rubberized liquid sealer for cracks in asphalt and concrete pavements is announced by Maintenance, Inc. Known as Lastek 33, it is said to prevent water penetration and subsequent freeze-thaw damage. It is reputed to greatly increase pavement service life and to enhance appearance. The product is also claimed to be ideal for sealing floors and parking decks against crack leakage. It is satin black in color, closely resembling Jennite J-16 surface sealer with which it is frequently used. For use in all cracks less than ⅜ inches wide. It is applied by pouring from small nozzle cans or cones. Packaged in 1 qt. plastic squeeze bottles for easy use, sealer is also available in 5 gallon cans.

For details, use **Key # BM-22** on inquiry card on page 1.

AUTOMATIC LADDER LEVELER

A fool-proof, automatic ladder leveler, manufactured by Barberton

Aluminum Specialties, is reported to take the risk out of ladder climbing on stairways, inclines or slopes, roofs, and other uneven surfaces for maintenance men, painters, carpenters, electricians, firemen, tree surgeons, utility linemen, etc. The Putsy Foot levels and locks itself when the ladder is set in place, eliminating blocking and tying-off. Each leg automatically seeks its own level and is locked in position by the weight of the ladder. Rustproof extruded aluminum legs feature gear racks inside. The device is quickly attached to ladders of any length, up to 26 inches in width, and virtually any type.

For details, use **Key # BM-23** on inquiry card on page 1.

HEAVY DUTY PORTABLE INCINERATORS

Two small capacity, heavy duty portable incinerators have been announced by the Plibrico Co. Model C-10 has a capacity of 100 lbs./hr. and Model C-15 is rated at 150 lbs./hr. Ratings are based on average dry waste with a value of 6000 BTU per pound. Identical in design, both models feature heavy duty construction. Exterior casings are of 10 gauge steel and the furnace lining is 6 inches thick, combining block insulation and refractory products. The units are mounted on 4″ steel skids. Charging of waste is made simple with a 24″ × 20″ counter-balanced charging door; door frame includes a lip on which to rest waste containers. Dump-type step grates increase burning efficiency and facilitate clean out.

For details, use **Key #BM-24** on inquiry card on page 1.

CHEMICAL GARBAGE DISPOSAL

An outdoor disposal unit (literally a bottomless "garbage can" that never needs emptying) that converts food wastes into a soil-absorbing liquid is being produced by Bardmatic Corp. The sealed, rust-resistant container controls odors and operates continuously without the use of electricity, motors, water or plumbing. It chemically dissolves food wastes of all kinds into liquid that seeps away into the soil. There are no moving parts, nothing to wash or replace. Chemical action in the non-tip unit is sanitary and keeps garbage from attracting insects, or animals. The catalytic chemical is ordinarily required only for the initial garbage deposit. Unit eliminates garbage hauling, burning, burying, or collection fees.

For details, use **Key # BM-25** on inquiry card on page 1.

WOOD FIBER ROOF COATING

A specially formulated silicone additive which coats each long wood fiber in Tectum Roof Deck and makes it water repellent has

been announced by the Tectum Corp. Much of the water damage to building materials is due to capillarity—the spreading of water through the material. Fiberguard reduces capillarity because water and the additive are not compatible. The development protects material in storage and during construction from damage and staining. Protection is also afforded against potential damage that might result from roof leaks at any time in the future. The additive is odorless, colorless and does not affect Tectum's insulation, noncombustible, structural, sound absorption, or light reflection values.

For details, use **Key # BM-26** on inquiry card on page 1.

BIRD REPELLENT COMPOUND

A scientific compound that is guaranteed to end bird mess by stopping pigeons and other birds from roosting on roof ledges, eaves or sills, has been announced by the Bird-Free Co. Called Bird-Free, the compound will not freeze in the winter or run in the summer and requires no special tools for application. It is easily applied in strips 1" wide by ¼" deep, with a putty knife or similar spatula-like instrument. Safe to human beings and birds, product contains a substance that birds do not like to stand on.

For details, use **Key # BM-27** on inquiry card on page 1.

ASPHALT WATERPROOFER

The life of asphalt driveways, ramps and parking areas can be greatly extended through the use of a new siliconized coating, states the manufacturer, Pace Products, Inc. Called Park-King, the product is applied by brush or spray to form an attractive satin black finish that completely waterproofs the asphalt surface. The silicones in this coating prevent water absorption from rain, ice or snow, and also protect the asphalt from oxidation under the hot sun. Coating also prevents spalling, which causes asphalt to pit, and never becomes tacky no matter how hot the surface temperature. Supplied ready to use; no mixing.

For details, use **Key # BM-28** on inquiry card on page 1.

SELF-POWERED SPRAY GUN

A self-contained spray gun that is held easily in one hand has been announced by Sprayon Products, Inc. Known as the Jet-Pak, it can be used anywhere. No compressors, hoses, or electric wires are required. Unit is powered by a replaceable can of propellant gas which delivers a steady, constant pressure from start to finish until it is completely used up. Sprays any liquid that can be thinned to proper consistency, including lacquers, stains, enamels and latex wall paint. Jet-Pak also gives quick and easy spray application of lubricants, protective coatings and special solutions.

For details, use **Key # BM-29** on inquiry card on page 1.

Fire spreads rapidly. Within eight minutes, fire is capable of multiplying 50 times. The Fire Equipment Manufacturers' Association, Inc., contends that more can be done to extinguish or control a blaze in the first five minutes than can be done in the next five hours. FEMA adds that approved and properly maintained portable fire extinguishers should be easily accessible and ready for use at all times. And, most important, employees should be trained in the proper use of this equipment.

Increased Hazards of Jet Fuels

A simple matter of taxes may cause a switch in jet plane fuels which will increase airport fire hazards, the National Fire Protection Association was told. Speaking at the international fire safety organization's 64th annual meeting, R. H. Tolson of Texaco Inc. explained that most jets now use a kerosene-type fuel.

If current proposals to tax all aviation fuels equally are adopted, he said, the jets "will probably change to a gasoline-kerosene blend." This is a quicker-burning fuel requiring added fire safety precautions for on-the-ground servicing of planes.

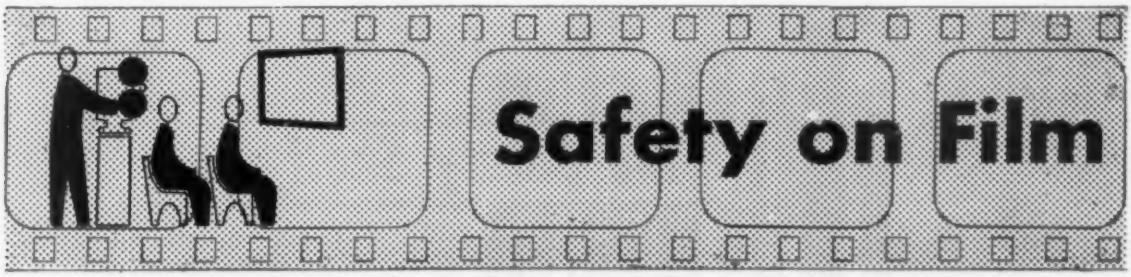
According to Tolson, the blended jet fuel is composed of "approximately 65 to 75 percent gasoline and 35 to 25 percent kerosene." This gives it a 'flash point'—or ease of ignition—fairly close to that of aviation grades of gasoline.

While airports now have standard safety procedures for handling all fuels, the much greater loads pumped into jets means new possibilities for fire-causing accidents.

"The principal hazards in the handling of aviation fuels are occasioned by spills," said Tolson. "They may range from a small quantity in disconnecting a hose to very large amounts caused by overfilling a storage tank or an aircraft, or even to a 'runaway' due to a ruptured delivery hose or pipe."

A major fire safety factor is the "tendency of both kerosene and the blends to dissipate their vapors slowly," he pointed out. "Thus areas where spills have occurred may remain potential fire hazards for longer periods of time than may be the case with gasoline."

The gasoline-kerosene blends also present more hazards in storage, Tolson pointed out, because their vapors are normally within flammable range. This is not so with either gasoline or kerosene alone.



Electrical Safety Film

Traid Corporation of Encino, California, in cooperation with the Pacific Telephone Company, offers a thirty-minute sound and color film strip on the proper use of electricity in everyday life.

Titled "This Will Kill You," the film is simply and entertainingly presented in such a way that everyone will understand the dangers of a wonderful, but potentially danger convenience.

The thirty minutes spent in viewing this award-winning film could save the life of a loved one, friend or employee.

Ideal for presentation to employee groups, schools, churches and clubs, this inexpensive message is available from your local audio-visual dealer or directly from Traid Corporation, P. O. Box 648, Encino, California.

Safe Driving Film

Drivers who always blame "the other fellow" for their traffic troubles get a disconcerting look at themselves through the magic mirror of motion pictures in a highway safety film premiered at the Greater New York Safety Convention. The 15-minute color film, entitled "To See Ourselves," was produced by Aetna Casualty and Surety Company.

Action revolves around Jim Morrow, a young sales executive who cuts his home-to-office travel time too thin and misses seeing an important client because "a lot of dangerous, discourteous drivers" made him late.

As Morrow complains about other drivers, a magical power whisks him back to his own driveway and makes him relive his drive —but this time with a difference.

During his second trip, Jim Morrow takes the place of the other drivers with whom he was involved. Thus, he is able to see himself as the others did earlier that morning.

Instead of blaming the "speeding" driver who almost hit him as he backed from his driveway, Morrow sees that he shot into the roadway without checking for traffic.

As the motorist who doesn't react to a green light swiftly enough to please the impatient Jim Morrow behind him, Morrow is startled almost into the path of another car by a sudden, raucous horn blast.

As the man who misses the parkway exit because a thoughtless Morrow is following too closely; as the truck driver who sees Morrow as a "wise guy" who causes a traffic snarl by ignoring a "Squeeze Right" sign, the now chastened Jim Morrow gets long, agonizing looks at himself.

Back in his office, Morrow's important client shows up. Climatically, Morrow recognizes him as the pedestrian his tires splashed with water an hour before. What's worse, the annoyed and still-damp client recognizes him.

"To See Ourselves" is the latest in a series of public safety films produced by Aetna Casualty's photographic bureau. Other films made by the company cover such topics as home, industrial, sports and water safety, fire and crime prevention.

The film will be distributed on a free-loan basis for showings by safety organizations, schools, and other civic and community groups. Bookings may be obtained by writing to Information and Education Department, Aetna Casualty and Surety Company, Hartford 15, Conn.

Chemical Film Guide

A revised edition of the "Film Guide on Chemicals, Chemistry and the Chemical Industry" has been published by the Manufacturing Chemists' Association. This expanded catalog now lists 182 titles. It includes alphabetical and subject indexes, a roster of distributors, and sources for films of related interest.

The films are listed by 11 categories and range in subject matter from the scope of a given chemical company to "The Petrified River—The Story of Uranium."

This Film Guide is designed for use by varied groups, but it is thought to be particularly helpful to educators. The suggested audience level is designated for each film.

Copies of the Guide may be obtained without charge from the Association, 1825 Connecticut Avenue, N.W., Washington 9, D. C.

Fire Prevention Film

Educational safety films produced by the Ætna Casualty and Surety Company are available on a free loan basis for specific showings from the company's Information and Education Department at Hartford 15, Conn., or through local Ætna representatives.

A fire prevention film, **"Stop Them Before They Start,"** is a 16mm, sound, black and white film lasting 14:30 minutes. Scale model buildings are used to give graphic demonstrations of fire and explosion hazards in the home and in industry. Preventive measures are shown for children and adults. The free loan of Ætna films is restricted to the continental United States. This film must not be televised without prior consent.

Welding Handbook Section 3

Publication of the Third Section of the Fourth Edition of the **"Welding Handbook"** is announced by the American Welding Society. The cloth-bound, 512 page volume contains 335 illustrations, 78 tables, and a very comprehensive index. Special welding and metal joining processes are covered, as well as arc cutting processes.

Recent developments in industry and the striking advances in joining technology have revealed the need to widen the scope of the **Handbook** in order to include Adhesive Bonding and the Welding of Plastics. Accordingly, these subjects have been included to fill the void which existed and to supply tabulated material from which standards could eventually be compiled.

Ultrasonic Welding

Ultrasonic welding is another subject new to the **Handbook.** This is one of the newest welding processes to have commercial applications, since minimum pressure is required, no heat source is needed, and a metallurgical bond is obtained without surface deformation.

Section III contains chapters on the following subjects: Forge welding, thermit welding, induction welding, surfacing, metallizing, brazing, soldering, welding of plastics, adhesive bonding of metals, oxygen cutting—auxiliary oxygen cutting processes, arc cutting, ultrasonic welding, welding by cold working, and stud welding.

A descriptive leaflet is available free of charge, and copies of Section III may be obtained from the American Welding Society, 33 West 39th Street, New York 18, New York, at a list price of $9.00 per volume.

Communications Standard

The effectiveness of public address systems and other speech communications equipment can now be evaluated for use in auditorium, factory or outdoor area with the new American Standard Method for Measurement of Monosyllabic Word Intelligibility, S3.2-1960, approved and published by the American Standards Association.

Arranged in 20 groups of 50 words each, the standard lists 1,000 monosyllabic words which have been selected for use in the development and evaluation of speech communication equipment and for testing this equipment under different environmental conditions.

The standard describes the procedures to be followed in conducting intelligibility tests which employ monosyllabic word lists. Further, it specifies the speech material and the methods to be used in these tests, and makes note of the variables that are to be controlled during the measurement and to be evaluated in the report.

The effectiveness of speech communication depends upon the nature of the speech material; the relevant characteristics of the talker and listener; the conditions under which the radiation, transmission, and reception of the speech waves occur; and the characteristics of the communicating system. By standardizing the speech material and an intelligibility test procedure, and by specifying methods for evaluating the talkers and listeners, as has been done in S3.2, a relative measure of the effectiveness of different communication systems under the same specified conditions of use (or the same communication system under different specified conditions) can be obtained. This is particularly useful in the development and evaluation of speech communication equipment and in the investigation of its performance under varied environmental conditions.

Other Methods Not Excluded

Although the method of measurement presented in S3.2 uses the phonetically balanced monosyllabic word, this choice is not intended to reject other test material or to limit future development in this field. It is rather intended to provide a yardstick for the measurement of the identification of spoken words transmitted over a communication system and to provide a standard to which other methods can be compared. Through standardization, the results of different experiments can be related.

The S3 project in ASA is sponsored by the Acoustical Society of America. A total of 27 manufacturer and user organizations from industry and government were represented on the S3 Committee which drew up this new American Standard.

American Standard Method for

Measurement of Monosyllabic Word Intelligibility, S3.2-1960, is available at $1.35 per copy from the American Standards Association, Dept. PR 155, 10 East 40th Street, New York 16, New York.

Fire Code for Dumps

A new guide on the establishment and operation of community dumps has been issued by the National Fire Protection Association. Detailing methods to minimize fire, smoke and unsightly disposal of material, the publication shows how communities can minimize a substantial item of expense: the cost of frequent fire department runs to put out dump fires.

One cost example cited is the experience of a typical community of 23,000 population, which spent $22,600 over a three-year period for fire department response to 51 dump fires. A considerable additional item was the more than 3,000,000 gallons of water used to extinguish the fires.

Subjects covered in the illustrated booklet range from suggestions on selecting a dump site and establishing fire breaks, to recommendations for fencing and signs.

The NFPA publication, "Recommended Good Practice for Community Dumps," is designed to aid city and town officials, fire department personnel and others in handling dump operation matters. It was prepared by the NFPA Forest Committee under the chairmanship of C. A. Thomson, Dominion Fire Commissioner of Canada.

Copies of the booklet (NFPA No. 602, 16 pages, 50 cents) are available from the National Fire Protection Association, 60 Batterymarch Street, Boston 10, Mass.

Handbook for Safety Committeemen

Safety Committeeman's Handbook, a new text outlining methods of organizing and conducting occupational safety committees, has just been published by Pagoda Press in Los Angeles, Calif.

Written by Albert C. Gordon, Director of Industrial Safety, Greater Los Angeles Chapter of the National Safety Council, the book is designed to assist the thousands of companies who rely on their safety committees to conduct their accident prevention programs in improving their committee techniques and general effectiveness.

Handy pocket-size and 124 pages in length, the chapter heads include philosophy and responsibilities of committees, selection of officers and members, duties of the chairman and secretary, planning and conducting the meeting, preparing the agenda, keeping records and minutes, coordination and communications, and measuring effectiveness. A model set of minutes is also given for reference.

Price and ordering information about the handbook may be obtained by contacting the author at the Greater Los Angeles Safety Council, 3388 West 8th Street, Los Angeles 5, California.

Radiation Control In Fires

How fire fighters and other emergency forces can deal with radioactivity problems is described in a new publication of the National Fire Protection Association. "Radiation Control" brings together a valuable selection of material on protective procedures to be followed in situations involving radioactivity. Citing a number of actual case histories, it covers necessary modifications of fire fighting techniques, training of fire forces to recognize situations with nuclear radiation dangers, and procedures to follow in inspections of property where radiation hazards may exist.

Other topics included in the publication range from the effects of nuclear radiation on the human body and radioactivity measuring instruments to clean-up of radioactive materials spillage and nuclear bomb effects.

It is a valuable handbook of information on the subject, published as a service to fire departments, private fire brigades and other emergency forces. Copies are available ($4.75 per copy) from the National Fire Protection Association, 60 Batterymarch Street, Boston 10, Mass.

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Major General N. H. Vissering, Commanding General U. S. Army Transportation Training Command, Fort Eustis, Va., presented R. L. Sullenberger, Fort Eustis Safety Director, with a citation in recognition of his service during 1959.

The citation, signed by A. D. McCauley, Chairman of the Advisory Board and A. W. Motley, Chairman of the Federal Safety Board in Washington, commended Mr. Sullenberger for his "valuable contribution to the promotion of accident-prevention activities of the government of the United States."

Mr. Sullenberger served as Chairman of the Hampton Roads area Federal Safety Council from January to December 1959. The Hampton Roads Chapter, one of a hundred such chapters throughout the United States, achieved an outstanding safety record during the past year.

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Panama Steamship Line has been presented with a National Safety Council achievement award for performance in the council's 1959 marine section safety contest for ocean and coastwise passenger and cargo vessels. The award commends the line's safety program for reducing the frequency of disabling injuries last year.

Panama Steamship Line operates a year-round series of 14-day Caribbean cruise-tours between New York, Haiti, Panama and the Canal Zone.

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The Harold Blancke Safety Award, emblematic of the best safety performance for 1959 in Celanese Corporation of America was presented to Summit (N. J.) Research Laboratories by Mr. Blancke, President of Celanese. The award is the top honor in the corporation's annual safety contest.

Ten plants and laboratories earned consideration for the award in 1959. Eight of the ten plants worked the full calendar year in 1959 with no disabling injury.

Employees at Summit Research Laboratories have worked more than three million hours, with no disabling injury since April 28, 1955. Safety procedures, inaugurated at Summit, are now basic to the corporation's other plants and laboratories. A recent notable safety achievement was Summit's development of a modernized labelling program for use in chemical laboratories.

The President of Celanese, accompanied by corporate executives, visits the award winning plant and with appropriate ceremony, personally presents the award each year.

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The sixth Award of Honor, top safety award of the National Safety Council, to be given to a plant of Armco Steel Corporation has been presented to the Torrance, Calif., plant of The National Supply Company, an Armco subsidiary, C. M. Allen, Armco, chief safety engineer, has announced.

The Torrance plant won the award for working 1,400,000 man-hours throughout the entire year of 1959 without a single disabling accident. This is the second best safety record ever made by an operation of Armco Steel Corporation and comes close to the top record of 3,868,634 man-hours set in 1953 by the Middletown and Hamilton plants of the Middletown Works.

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Tee-Pak, Inc., of Chicago, has been presented its third Award of Honor for outstanding safety performance by the National Safety Council. In conjunction with the award, the firm's insurance carrier, Globe Indemnity Insurance Company, also presented Tee-Pak president, Seymour Oppenheimer, with a plaque signifying the firm's continuous safety improvement over the years.

Because the National Safety Council's award is based on improvement over the preceding year, Tee-Pak had to reduce accidents 70 percent with an improvement of 30 percent in days lost on the job.

Eugene S. Skorupa, personnel manager and safety director, said Tee-Pak met this challenge and achieved the goal with additional honors. He said the firm was especially proud of a new high of 300 consecutive days and 800,267 hours of exposure without a disabling accident.

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The Jones & Laughlin Steel Corporation Stainless and Strip Division plant in Detroit has been presented with the National Safety Council's Award of Honor.

M. K. Schnurr, president of the division, representing the plant employees, received the award from Norman Olman, District Director of the National Safety Council.

In his congratulatory message, Mr. Olman said: "The employees of the Detroit plant can well be proud of this truly remarkable safety performance. By their achievement of working 3,087,967 man-hours between October, 1958, and December, 1959, without a disabling injury, they have demonstrated that today's industrial plant can be, and is, a safe place to work."

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Employees of the Aliquippa Works of Jones & Laughlin Steel Corporation were honored for the

best safety record in the history of the steel industry in the Pittsburgh district.

Charles M. Beeghly, newly-elected President of J&L, presented two awards to the Aliquippa Works. One was the J&L President's Award for the best 1959 safety performance among J&L's three steel producing plants. The other was a special citation for the more than 14,000 employees at the Works, who recently established an all-time J&L safety record by working 135 days, or 10,485,721 man-hours, without a disabling accident.

This record establishes the Aliquippa Works not only as the safest steel plant in the Pittsburgh District, but as one of the two safest steel plants in the entire country.

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The Clarence Center, New York, mine of Bestwall Gypsum Company has been named winner of the U. S. Bureau of Mines' national safety competition, 1959, non-metallic division, it was announced by Rawson G. Lizars, president of the Company. The Clarence Center mine, a part of the company's Akron, New York, manufacturing operation, worked 265,192 man-hours in 1959 without a disabling injury.

Winners of the National Safety Contest receive "Sentinels of Safety" bronze trophies provided by Explosives Engineer Magazine. Last year, 672 mines and quarries competed in all divisions. Fifty-one mines were in the non-metallic competition.

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Elwood R. Quesada, administrator of the Federal Aviation Agency and, as such, the "boss" of U. S. air operations, was cited recently by the nation's aviation press for his "vigorous" air safety efforts.

The Aviation Writers Association presented Quesada with the 1959 Monsanto Aviation Safety Award for having made the year's "most significant and lasting contribution to aircraft operating safety."

Monsanto Chemical Company founded the annual award in 1957 "to acknowledge and encourage progress in aviation safety." Its recipient is chosen by an AWA committee from candidates nominated by a screening committee of top aviation officials.

Quesada's selection for the award was based on his "vigorous implementation of the Federal Aviation Act of 1958" under which Congress consolidated control of air activity in a single agency to cope with the increasing air traffic problem.

He also was cited for prompt action on "needed research and development in the field of air traffic control, including the integration of military and civilian air traffic," and for implementing "modern concepts of accident prevention." These included emphasis on the study of human factors involved in accident prevention and the inclusion of instrument flying capability as a qualification in licensing private pilots.

• • •

The National Safety Council has announced that the W-K-M Division of ACF Industries, Incorporated, located in Missouri City, Texas, has been presented the council's Award of Honor for its excellent safety record. The award was presented because of W-K-M's low injury rates in 1959. Its injury frequency rate was 86 percent better than its "par" rate, and its injury severity was 92 percent better. Par rates are computed by the National Safety Council from the plant's experience in other years and from the rates of the industry classification to which it belongs.

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It has been more than three years and three million man-hours since a disabling injury occurred at United States Gypsum Company's plant in East Chicago, Ind. This feat establishes an all-time safety record for a U. S. Gypsum plant, according to E. C. Beuthin, Manager-Safety.

At a ceremony commemorating the achievement, Charles W. Desgrey, Vice President, Manufacturing, presented Works Manager Henry I. Neeley with a plaque which symbolizes exclusive membership in the company's 3-Million Man-Hour-Club.

At present ten U. S. Gypsum plants are members of the Million Man-Hour-Club—having worked a million man-hours without a disabling injury—and one other plant has passed the 2-million man-hour mark.

Since Neeley became Works Manager in 1952, the East Chicago plant has received numerous awards for outstanding safety achievements. For the past two years, it won U.S.G.'s highest safety award.

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Harry A. Kuschmann, staff superintendent of safety at the San Francisco maintenance base of United Air Lines was recently presented an award of outstanding achievement from J. A. Herlihy, the company's senior vice president—engineering and maintenance. The annual employee award was given to Kuschmann in recognition of his safety program and his share in creating safety consciousness.

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Apgar Bros. Motor Transportation, Bound Brook, N. J., has received the Trailmobile Safety Award presented to the Apgar firm by the American Trucking Associations. The Apgar fleet won the grand trophy for the best safety record of all fleets entered in a contest jointly sponsored by the New Jersey Motor Truck Association and Trailmobile, Inc.

The company was also awarded a plaque for topping all other entrants in the one-to-five million miles a year class.

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The 3,000 employees of Daystrom's Weston Instruments Division, Newark, N. J., worked 6,500,000 man-hours without losing a day because of accident in the fourteen months from January 28, 1959 to March 31, 1960. Their unusual record won a New Jersey state safety award for the plant.

inside the trade

Appointment of the *Accelo Sales Company, Inc.* of 11 West 42nd Street, New York, New York as agent for the *Process Engineers Division* of *THE EIMCO CORP.* of Salt Lake City, Utah, has been announced by Earl M. Kelly, president of the division. Accelo will handle the Eimco and Process Engineers water and waste treatment equipment in all five boroughs of New York; Long Island, Northern New Jersey and Westchester, Rockland counties of N. Y. and Fairfield county in Connecticut. The Accelo Sales Company, Inc., is directed by *Jesse D. Crell* and *Edward A. Strahlendorff*, both graduate engineers and with many years of national and international experience in the waste and water processing fields.

The construction of a new branch office building in San Jose, California, has been announced by Walter S. Hillyard, President of *HILLYARD SALES COMPANY* (Western). Adjoining the existing Hillyard plant and warehouse at 11th and Commercial in San Jose, the new structure houses an area of over 6,000 square feet. The additional space will be allocated to general sales offices, sales conference rooms and warehouse department offices.

The sales company, which exclusively markets Hillyard products west of the Mississippi River, is headquartered in St. Joseph, Missouri, as are its sister company, Hillyard Sales Company (Eastern) and the manufacturing organization, Hillyard Chemical Company.

Lester D. Moss has been appointed representative in the state of Michigan and the Toledo, Ohio area by *WAVERLY PETROLEUM PRODUCTS CO.*, Philadelphia. In his new position, Mr. Moss will be responsible for sales and service of Waverly's entire line of industrial oil and grease absorbents, and granular pet litter products. He lives at 20271 Kentfield Rd., Detroit 19, Michigan.

The appointment of *Frederick R. Upton* as exclusive sales and service representative in the Bristol County, Mass., all of Rhode Island and New London and Windham County in Conn., has been announced by *LEWIS-SHEPARD PRODUCTS, INC.*, producer of materials handling equipment. Mr. Upton's office will be located at Greenlawn Street, Warren, Rhode Island, where he will maintain complete sales and service facilities for Lewis-Shepard customers in that area.

Williams & London Advertising, Newark, N. J. and New York has been appointed by *TECT, INCORPORATED*, Northvale, N. J., manufacturers of industrial safety solvents.

M. Genevieve Reece

On May 3rd at Columbus, Nebraska, *M. Genevieve Reece* died after an illness of several months.

Since 1919, Miss Reece had been associated with *REECE WOODEN SOLE SHOE CO.*, having served as manager and treasurer for more than thirty years until her retirement in 1958.

Under her supervision, the Reece Company, a pioneer in foot protection, developed many new styles in industrial footwear for preventing foot injuries, including an orthopedic shoe for use while injured feet are under treatment.

In order to serve the great midwestern trading area better and faster, the Chicago District Sales Offices and warehouse facilities of the *AMERICAN CHAIN & CABLE COMPANY, INC.*, have been moved to larger quarters at 2040 North Hawthorne Avenue, Melrose Park, Ill., according to an announcement made by *Henry Ervin*, vice president and director of sales.

Several divisions of the Corporation, including ACCO Equipment, ACCO Power Products, American Cable, American Chain, Hazard Wire Rope, Helicoid Gage, Page Steel & Wire, Pennsylvania Power Mower, R-P&C Valve, Wilson Mechanical Instrument, Wright Hoist, and the wholly owned subsidiary, The Bristol Company, will be served by the new headquarters.

Paul S. Langa has joined *WALTER KIDDE & COMPANY, INC.* (Belleville, N. J.), manufacturers of fire fighting, aircraft and missile equipment, and will serve as Director of Industrial Relations. Mr. Langa has acted as a private consultant in his field with the Crescent Petroleum, Merck and Company and the U. S. Gypsum Company.

The appointment of *J. Drenon Bone* as Southern Regional Sales Manager is announced by L. E. Jordan, General Sales Manager of *SCOTT AVIATION CORPORATION*. Mr. Bone was formerly Southern Manager for the Dockson Company of Detroit. He will cover the southeastern states promoting the sales of Scott industrial products with headquarters at 1036 Oxford Rd., N.E., Atlanta, Ga.

Paul F. Stricker, executive vice-president of the *GREATER NEW YORK SAFETY COUNCIL*, retired April 30. He had served in this position since November 1943. Mr. Stricker's career in the organized safety movement covers a span of 38 years.

On graduation from Cornell in 1917, he enlisted in the army and served for two years. After working in chemical engineering, research, and development activities for four years, he became the first director of the Baltimore Safety Council in 1923. From 1925 to 1928 he was a field representative for the National Safety Council.

Later, Mr. Stricker was appointed director of safety for the Tennessee Valley Authority. He rejoined the National Safety Council in March 1936 as director of field service. He served in that position until he became executive vice-president of the *GREATER NEW YORK SAFETY COUNCIL*.

Robert J. O'Donnell, district director of the National Safety Council, will be the acting manager of the *GREATER NEW YORK SAFETY COUNCIL*.

AMERICAN DISTRICT TELEGRAPH COMPANY, which specializes in electric protection services, is erecting a new manufacturing plant in Clifton, New Jersey, E. F. Gaston, president, announced. The new building, which will have a floor area of 100,000 square feet, will replace manufacturing and warehousing facilities now located in New York. ADT executive offices will remain in New York.

INDUSTRIAL PRODUCTS COMPANY, Philadelphia manufacturer and distributor of nationally recognized lines of safety equipment, has acquired the

Guardian Safety Equipment Co., Orange, New Jersey, a distributor of industrial safety products, it was announced by *E. Fred Shipmen*, president of Industrial Products Co.

In addition to staff personnel, Guardian partners *Harold C. Mesch* and *Frank L. Bower* will continue in sales executive capacities as vice presidents of the New Jersey operation.

WILLSON PRODUCTS, a leading industrial safety equipment manufacturer, is intensifying its efforts to serve safety directors at a professional level. For this purpose, a Willson safety clinic was held at Willson's home plant in Reading, Pennsylvania, recently.

According to Willson Sales Manager, *W. C. Weeks*, the Willson safety clinic will provide Willson safety counselor-representatives with product information and sales insight that will enable them to further devise, strengthen and apply voluntary, cooperative means of reducing accidents. Willson plans several of these clinics each year to further train its distributor representatives in helping safety directors meet the demands of the latest advances in technological equipment, chemical and radiation hazards, electronics, radar, high noise level of jets, high powered equipment, etc.

C. M. Donahue and *E. W. Merry*, vice presidents of *MINE SAFETY APPLIANCES CO.*, have been elected to new posts in the international and the domestic operations of the company. Mr. Donahue becomes president of the *M.S.A. International Division*, and continues as vice president of the parent company. Mr. Merry becomes executive vice president in charge of domestic operations.

NORTH SHORE NAMEPLATE, A Division of Anodyne, Inc. will occupy its new plant at 1270 N.W. 165th St., in North Miami Beach in the very near future, according to Eugene T. Turney, Jr., the company's president and board chairman. At the new location, North Shore will manufacture anodized and etched, pressure-sensitive aluminum foil nameplates and panels, markers and safety signs. Initially the plant will have 28,500 square feet of manufacturing area, with additional space set aside for future expansion.

Mr. Turney said, "We also plan to use physically handicapped people wherever possible. Their exceptional work is a proven fact at Abilities, Inc., where over 400 employees are physically handicapped." Mr. Turney is a Director of Abilities, Inc., Albertson, L. I.

The firm will also greatly enlarge its Bayside, L. I., facilities to accommodate its growing number of local customers and plans to build an additional plant in Nassau County this fall.

SAFETY APPOINTMENT

Luther Skelton, formerly Louisville Fire Department Captain, has been appointed by The Kentucky Department of Insurance to supervise fire safety in state buildings. His principal duties will be to organize and train fire and evacuation brigades, with emphasis on schools, hospitals, and welfare, mental and penal institutions. Insurance Commissioner William Hockensmith said Skelton has had 24 years' experience in fire safety service. Skelton is initially making a survey of fire fighting equipment and the present organization of emergency squads in state buildings.

Varied Items at Engineering Show

The Production Engineering Show, held every five years to coincide with the Machine Tool Show, will have about 50 percent more exhibitors and occupy about 100 percent more exhibit space than it did in 1955, it was reported by Clapp & Poliak, Inc., New York. This firm produces the show and also serves as the exposition management for the Machine Tool Show, sponsored by the National Machine Tool Builders Association.

Both shows will be held in Chicago from September 6 through 16. Exhibit space at the Machine Tool Show, which will be held at the International Amphi-theatre, is restricted to association members producing machine tools. Exhibits at the Production Engineering Show, to be held at Navy Pier, are open to exhibitors whose products support prime production tools. Mechanisms, instruments and equipment that contribute to greater production efficiency and safety will be shown.

Among the varied products to be shown in the exhibits will be:

Control equipment: Numerical controls; metering and monitoring devices; quick-disconnect, shutoff and pressure-relief devices; remote controls including mechanical arms, built-in conveyors, optical viewing devices, television, and signaling and recording equipment.

Machine components: Indexing and sequencing devices; lifting and positioning devices; motors including air, hydraulic and pneumatic; bearings, pulleys, clutches, gears and V-belts; pumps; compressors; switches, relays and other electrical devices, and transfer mechanisms.

Auxiliary equipment and supplies: Coolants; lubricants; hydraulic fluids; portable tools; chucks, jigs and dies, and registration devices for controlling moving sheet materials with photoelectric, pneumatic and mechanical controls.

Intraplant communications: Telephones; personal paging systems; television, and warning and signaling devices.

Safety equipment: Protective clothing, masks and goggles; manual safeguards, and automatic shutdown equipment.

Materials handling equipment: Cranes; hoists; conveyors; vibrating feeders; monorails, and pneumatic tubes.

Inspection gauging and testing equipment: Thickness gauges, including electrical, x-ray and beta ray; weighing devices including electrical strain gauge, mechanical and electronic; height-of-fill gauges; flaw detection equipment including ultrasonic, x-ray, and fluorescent pigment; measuring devices including optical, mechanical and electrical, and tensile and hardness testing devices.

Special production equipment: Welding and riveting machines; grinding and polishing equipment; heat treating and hardening equipment including furnaces, induction heaters and explosive-hardening units; parts-cleaning equipment including mechanical, ultrasonic and abrasive blasting; waste-disposal equipment including fume-removal hoods, conveyors and scrap balers; blue-printing and photographic reproduction equipment; electroplating, electropolishing and chemical milling equipment, and vacuum plating equipment.

More than 125,000 visitors from all parts of the world are expected to attend. Plans have been made to make it easy for them to schedule their time for maximum effectiveness at both shows. A single badge and registration fee will admit visitors to both shows. Buses will shuttle between the International Amphitheatre and Navy Pier. For additional information, write: Clapp & Poliak, Inc., 341 Madison Ave., New York 17, N. Y.

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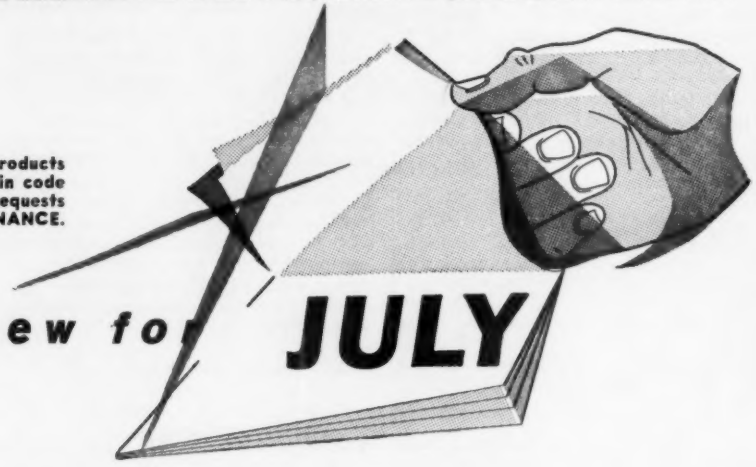
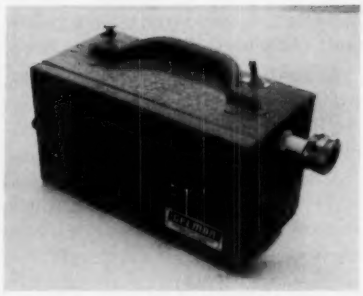


what's new for JULY



PORTABLE AIR SAMPLER

(Use Key # 766 on Inquiry Card on page 1)

A 9-LB. air sampler from Gelman Instrument Co. samples air at the rate of 2 cubic feet/minute. The centrifugal carbon vane pump unit never requires lubrication. Universal motor which drives pump has been designed to pack the most power in the smallest package. Built-in fan and louvered metal case provide air circulation to keep the pump cool. The case protects it from rough handling and accidental dropping. Flowmeter is directly calibrated in liters/minute. The sampler is supplied with a 1" open filter holder. This can easily be connected to the pump by means of a new polyethylene press fit coupling. Sampler is designed primarily for survey work where it can be used for 8 hours or more per day.

FIRE FIGHTING FOAM CART

(Use Key # 767 on Inquiry Card on page 1)

A VERSATILE "tanker," available from National Foam System, Inc., for multiple fire fighting uses, consists of a steel tank, of 100 or 150 gallon capacity, with storage bins fore and aft, supported by two pneumatic-tired wheels. Unit has an extendable drawbar with ball-and-socket hitch. The 76 inch long cart has two 8 inch running boards. Bin capacity is approximately 3½ cubic feet—enough to hold up to 150' of 2½" fire hose.

To the basic unit can be added a PW-50 nozzle with a line proportioner drawing foam liquid stored in the tank. With 150-pound pressure from hydrants, nozzle can throw a 4000 GPM stream 180 feet. Tool boxes and dry chemical extinguishers may also be carried. Cart can be equipped with two RP-12 nozzles, mounted on either side. Tank is also useful as a water reservoir, combined with portable fire pump. Water supply can be replenished by using the pump to draw from other sources. Foam liquid in 5-gallon containers can be carried in the storage bins. Either line or suction proportioners can be used effectively. The pump is capable of delivering, from draft, up to 60 GPM at 100 pound pressure.

NEW ORAL RESUSCITATOR

(Use Key # 768 on Inquiry Card on page 1)

MOUTH-TO-MOUTH rescue breathing by untrained persons without personal contact with the victim is facilitated with the Venti-Breather resuscitator, manufacured by Venti-Breather Products, Inc. A flexible face mask separates the rescuer from the victim in a sanitary manner, and fits both adults and children. The rescuer breathes through a special tube to inflate the victim's lungs; as the victim's lungs deflate, a unique one-way valve directs his breath away from the rescuer's mouth and face. Nothing is inserted in the throat of the victim to cause gagging or injury. For asphyxiation caused by drowning, heart attack, electric shock, suffocation, gas or smoke inhalation, stroke, etc.

EYEGLASS HEARING AID

(Use Key # 769 on Inquiry Card on page 1)

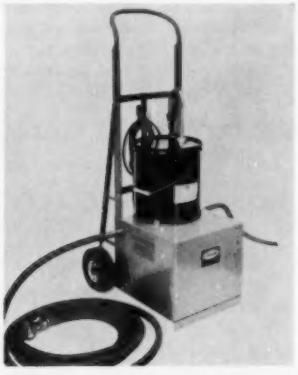
AN EYEGLASS hearing aid known as the Medallion, with slim temple bars that are actually one-third smaller than previous Zenith models, has been announced by Zenith Radio Corp. Weighing one-half ounce with mercury battery, unit has four transistors, volume control, tonal adjustments, and separate on-off switch. All parts are encased in a plastic temple bar that can be custom contoured to the individual. Interchangeable temple tips in varying lengths enable men's or women's eyeglass fronts to be attached to the hearing aid in seconds. Frame fronts containing sunglass or safety lenses can be detached in a snap, allowing the user to affix reading or viewing glasses.

The Medallion offers amplification at the cost of less than one cent per hour. Maximum acoustic gain of the new instrument is 50 decibels with a maximum acoustic output of 125 decibels. The hearing aid was designed also to offer binaural (two ear) hearing, which allows the wearer additional discrimination and increased listening enjoyment when two units are used, making it possible to give each ear the tonal adjustments and degree of loudness it requires with fingertip control.

ANTI-FOGGANT CLEANER

(Use Key # 770 on Inquiry Card on page 1)

A DOUBLE ACTION cleaner and anti-foggant for glass and plastics is being marketed by International Latex Corp. Eyes Right is claimed to give total cleaning because it has controlled surface tension which results in maximum dispersion and penetration of the liquid; it frees and floats all trapped dirt to the surface to be wiped away, the maker states. When water vapors come in contact with glass or plastic treated with the product, the surface tension of the water is lowered and it cannot coalesce to form fog. Contains no glycerine or silicone and does not smear. For office or factory use, it is packaged in a handy, compact wall cabinet. Eyes Right also comes separately in lightweight, non-breakable polyethylene bottles.



PORTABLE DUST SUPPRESSOR

(Use Key # 771 on Inquiry Card on page 1)

A PORTABLE dust control system has been developed by The Johnson-March Corp., for single point dust suppression or controlled wetting of raw materials. The Chem-Jet dust suppressor can control dust at truck unloading areas, crushers, conveyor transfer points, screens, mixers, stock-piling areas, etc. and other dust generating points encountered in conveying, packaging and processing raw materials. Four different models of the basic systems are available; each includes a proportioner, mixing chamber and auxiliary controls mounted on a hand truck that can be rolled from place to place. The four designs, two manual and two automatic controls, cover both local or remote operation. If desired, the hand truck can be removed and the installation made as a permanent, fixed unit.

The proportioner can be factory adjusted to dispense from 1 to 11 gpm of non-toxic dust suppression solution. The standard unit is set to deliver 6 gpm of solution when attached to a plant water supply at 40 psi. In addition to water line, electricity is the only other connection required. Dust suppression solution is made up of minute parts of Compound MR mixed with water.

LOCKING CLAMP FOR PORTABLE FOLDING STAGES

(Use Key # 772 on Inquiry Card on page 1)

HORIZONTAL travel, plunger-type toggle clamps, made by Detroit Stamping Co., provide positive locking in any desired location for mobile folding stages made by Schieber Mfg. Co. Clamp bases are welded to U-shaped brackets that are bolted to the corner legs of the stages. The ends of the clamp spindles are fitted with non-marking neoprene caps which contact the floor when in the locked position. Quick-acting Model 605 clamps are actuated by depressing the handles. This lifts the corner-leg caster ⅛-inch above the floor surface, and securely locks the stage in place. Clamps have been tested for loads up to 180 pounds per square foot.

MULTI GAS DETECTOR

(Use Key # 773 on Inquiry Card on page 1)

THE DRAEGER gas detector is designed for tracing and determining gas concentrations, taking semi-quantitative gas estimations which can be read at the site of the test. This versatile detector is of particular advantage for controlling the maximum allowable concentrations of contaminated air, for detecting leaks in gas pipes and reservoirs, for detecting gas losses in recovery equipment, for identifying certain unknown gaseous contaminations, for technical gas analysis.

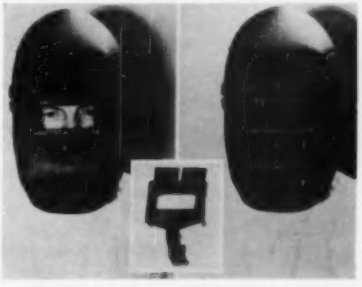
Over 22 different detecting tubes for the detection of different gases, or different concentrations of gases, are constantly being improved in sensitivity and stability to meet the demand for tubes to detect gases not covered by existing tubes. The gas detector is a hand operated instrument, easy to use, dependable, and has already been

extensively proved in field use in chemical plants, oil refineries, steel mills and laboratories of many kinds. Available from the Draeger Oxygen Apparatus Corp.

PROTECTIVE CLOTHING FOR SUB ZERO TEMPERATURES

(Use Key # 774 on Inquiry Card on page 1)

PROTECTIVE CLOTHING insulated with a ¼" special high density urethane foam has been developed by the Freezer Wear division of The Flexa Corp. of America. Weighing less than 3½ pounds, Freezer Wear permits men to work efficiently at 30° below zero for 2½ hours at a time. Made to demanding industrial standards, these comfortable, insulated garments eliminate needless lost time.



NON-LIFT WELDING HELMET

(Use Key # 775 on Inquiry Card on page 1)

A WELDER'S HELMET which eliminates lifting of the visor from the face when the welder inspects his work has been developed by Auto-View Welding Helmet Co. Gear is designed so that protective eye guard lifts from view with the workman's jaw motion, leaving a clear plastic area for viewing. Manufacturer cites increased safety factor, due to worker's not having to continually raise helmet while working, and better quality, due to elimination of drag bead, as well as scoring and mutilation by misguided arcs. Adjustable helmet is of fiber construction.

ACCURATE THERMOMETER FOR PROCESSING EQUIPMENT

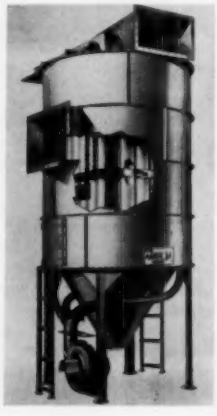
(Use Key # 776 on Inquiry Card on page 1)

TEMPERATURES of processing rollers and drums can be acurately measured through use of the Gelman-Wallac Rotating Object thermometer. This device, available from the Gelman Instrument Co., permits measurement without actual contact of the probe with a surface, so that no errors are introduced due to friction. Unit consists of a resistance sensing head and a battery operated temperature indicator. Probe is positioned about .003 inch from surface to be measured. Conduction losses of the surface heat the sensing element. Errors from losses are automatically compensated by a built-in parabolic reflector. Indicating unit, which operates from a flashlight battery, can be held in one hand. Registers temperatures up to 450°F.

FABRIC DUST COLLECTOR RECLAIMS DRY MATERIALS

(Use Key # 777 on Inquiry Card on page 1)

AN EFFICIENT, low-cost, cylindrical fabric dust collector, introduced by American Air Filter Co., is adaptable to any application requiring the reclaiming of dry materials. The Model B Amerjet can be used in cement plants, foundries, mineral grinding systems and compounding operations, all types of chemical processes, pharmaceutical plants, foods and fertilizer operations, etc. Dust-laden air is either drawn or blown into the inlet plenum at the top of the collector. The dust then enters the filter bags through venturi-shaped inlets. The very fine dust is held by the velocity of the air against the inside of the 9" diameter filter bags; dislodging is accomplished by a reverse-jet of air through heavy-duty continuous die-cast aluminum jet rings, which form a complete jet case assembly.



High pressure cleaning air is blown through annular orifices from the inside diameter of each jet ring. This air is supplied by an externally located pressure blower connected to the secondary air columns. The columns in turn introduce the high-pressure air to a moving shoe which enters two neoprene rubber flaps mounted vertically in the open side of the air column. This feature eliminates rubber hose wear problems and acts as a guide for the up and down path of the jet case assembly. Four heavy-duty, non-binding pintle chains are connected to the jet case which in turn raises and lowers this rugged filter bag cleaning device. These chains are driven by 6" diameter sprockets mounted on $1\frac{3}{16}$" diameter shafting outside of the housing, thoroughly weather protected, insuring a fool-proof drive system. The Amerjet is said to use approximately one-fourth the number of filter bags normally required in conventional fabric arresters.

DRY CHEMICAL EXTINGUISHER

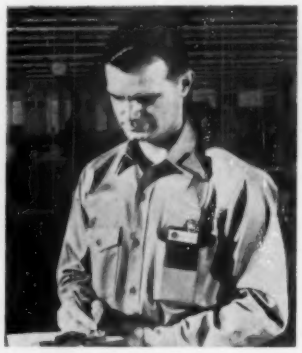
(Use Key # 778 on Inquiry Card on page 1)

HIGHEST RATING ever granted a fire extinguisher by Underwriters' Laboratories has been awarded to a 350 lb. dry chemical wheeled extinguisher made by Ansul Chemical Co. The rating was set at 160-B:C. If indicates that a novice using the extinguisher for the first time should be able to put out a standard gasoline pan fire 160 square feet in area. During testing, standard gasoline fires of 400 square feet were consistently put out by UL experts in 11 seconds. Rating was given as a result of new features which increase the rate of flow and improve distribution of dry chemical in the stream pattern. Extinguisher designed to protect against flammable liquid hazards in fueling and pipeline operations.

POCKET PAGING RADIO

(Use Key # 779 on Inquiry Card on page 1)

TRANSISTORIZED shirt-pocket radio receiver with miniaturized circuitry requiring 35 percent less power than similar equipment, has been introduced by General Electric Co. Voice Director weighs only 12 ounces with battery; is said to have selectivity and sensitivity comparable to mobile radios many times heavier and larger.



Designed for indoor and outdoor voice-paging of key personnel, equipment is engineered so the person wearing it may be contacted instantly by a base station transmitter, a two-way radio in a car, or by a portable unit operating on the same frequency.

The receiver uses a 6½ volt, single mercury battery which, due to its size, simplifies stocking problems. Features internally mounted antenna.

A tiny directive horn, that clips to the wearer's lapel, is used when privacy is not required and loudness of the radio will not disturb others. When the wearer desires to hear to the complete exclusion of others, an ear-piece may be used. Adjustable volume and squelch controls are flush-mounted at the top of unit for easy accessibility and to avoid breakage.

NEW ULTRASONIC CLEANER

(Use Key # 780 on Inquiry Card on page 1)

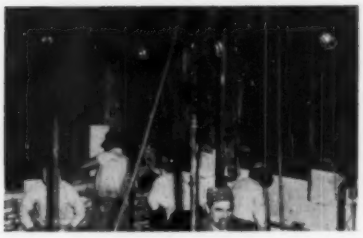
A SELF-CONTAINED high speed cleaner, called the Ultra-Clean 320, has been introduced by the L & R Mfg. Co. Two one-quart tanks are built into the generator body of the unit, enabling a newly-designed electronic circuit to transmit power directly from the generator to the transducerized tank. The second tank is for the rinse operation. The unit has been designed to clean at high speeds, with a minimum of attention. A new electrical timer controls the cleaning cycle and turns off the current after a pre-specified period.

PORTABLE LIGHTING SYSTEM

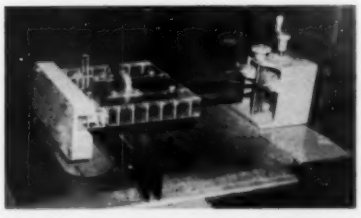
(Use Key # 781 on Inquiry Card on page 1)

LIGHTING SYSTEMS for quick on-job assembly in construction and repair have been introduced by J. B. Nottingham & Co., Inc. Plug-in, building block units for the 2-, 3-, and 4-pole Tuffline systems manufactured by the Whitney Blake Co., include primary and secondary breaker panels, distribution blocks, and light streamers with complete electrical, physical, and safety protection.

Equipment and cables are insulated with a neoprene compound resistant to



fire, sunlight, heat and cold, oils and chemicals, and physical abuse. To protect personnel, an equipment ground molded into the entire system engages first and disengages last. Plug and receptacle connections are polarized to prevent mismating and are designed to keep water out of connections even when submerged. Systems, which can distribute power for tools as well as for lighting, can be set up and taken down without tools and readily moved or expanded as a job progresses.



SHIELD EXTENSION FOR SAW GUARD

(Use Key # 782 on Inquiry Card on page 1)

VERSATILITY and greater safety are cited by the Brett-Guard Corp. for their circular saw safety device with the addition of a specially designed Shield Extension Accessory which can be used successfully for close work and many previously unguardable, intricate operations including template cutting and tapering. Even curves and circles can now be cut conveniently and safely, states the manufacturer. The unit can be fastened to the front end of the plexiglas shield. The Brett-Guard see-thru hood is then positioned so that the extension accessory covers the saw blade and also contacts the material being sawed. Practically any sawing operation can be protected without interfering with the work, it is claimed. Approved by U. S. Army and New York State Dept. of Labor.

COLLAPSIBLE ESCAPE LADDER

(Use Key # 783 on Inquiry Card on page 1)

AN EMERGENCY fire exit that provides a means of a rapid escape from any building where conventional exits are blocked is the Safety-Scape Collapsible Ladder, introduced by the Gratz Products Corp. Unit is made of steel with its rungs linked together to form a rigid support for any emergency. In storage, it is bolted permanently to a wall directly beneath any window. Collapsed, the ladder occupies less than 1 sq. ft. of wall space. Comes supplied with attractive metal cover. In the event of an emergency such as fire, explosion, smoke, etc. the cover is removed and the ladder is tossed out of the window, opening immediately to its full 25 feet, equal in height to a 3-story building. Said to be capable of supporting 1,000 lbs.

COMPACT EMERGENCY BREATHING APPARATUS

(Use Key # 784 on Inquiry Card on page 1)

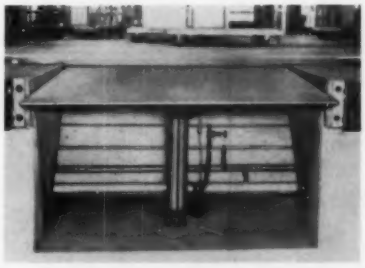
SELF-CONTAINED breathing devices to protect against respiratory hazards in fire fighting and general emergency conditions are offered by Rockwood Sprinkler Co. The PocketAire units feature pure oxygen, lightness of weight, "escape" cylinders as extra precautions, and leakproof masks. Each model contains two cylinders, one of which is a 5-minute unit for use in returning to safety when the working cylinder is exhausted. Available with 25-, 15-, or 5-minute working cylinders. Largest model weighs 9 lbs. All are easily attachable and adaptable to wear under fire-resistant suits or hoods.

NEW ULTRASONIC TESTER

(Use Key # 785 on Inquiry Card on page 1)

A PRECISION engineered instrument used for non-destructive inspection of material which can support ultrasonic waves, i.e. metals, plastics, ceramics, etc., is available from Circo Ultrasonic Corp. Uses of the Model CM100 Ultrasonic Materials Tester include flaw detection, either surface or internal, thickness measurement from one side, and determination of physical and structural properties. The unit is completely portable, designed for in-plant use, simple and economical to operate and can use any common plant power supply. Accessories for a wide range of applica-

tions are available. Components are a generator and receiver for high frequency vibrations sent in a pulsed beam through material to be inspected and discontinuities, as well as the opposite end, reflect vibrations back to receiver indicating size and location of reflecting areas on the viewing screen.



HYDRAULIC DOCK RAMP

(Use Key # 786 on Inquiry Card on page 1)

AN AIR-OPERATED hydraulic dock ramp designed to speed the transfer of freight between loading platform and vehicle with minimum danger of damage to goods or accident to personnel has been developed by The Adley Express Co. Known as Autoramp, the device adjusts to the level of the truck or trailer floor at the touch of a button, providing a strong, steady span between vehicle and dock. When the vehicle leaves the dock, the ramp raises automatically, permitting the next vehicle to back in without danger of damage to ramp or tailgate.

STORAGE CONTAINER FOR RADIOACTIVE MATERIALS

(Use Key # 787 on Inquiry Card on page 1)

A NEW CONTAINER for the storage and transport of radioactive isotopes has been introduced by Radiation Hazard Control Co. The new container is made of steel which will withstand rugged use without denting, thus the top will always fit securely and retain its shape. The use of steel also eliminates the fire hazard encountered in lead containers. Configuration of the container is flush along the sides, top and bottom to allow stacking and permit insertion into larger containers. A stainless steel handle locks the top securely in place and may be padlocked to prevent chance opening when working around untrained persons. The clamp and lock remain in place even when the handle is up so that container may be carried without danger of opening if dropped.

The over-all height of the container is seven inches, with a five inch diameter. The wall thickness is 1½ inches and it has been tested, according to ICC regulations, to carry up to 13.7 milicuries of Cobalt-60. The well is 3½ inches deep by 2 inches in diameter; weight of unit is 30 pounds.

NEW SANITIZER-DEODORIZER

(Use Key # 788 on Inquiry Card on page 1)

A POWERFUL germicidal effective against gram positive and gram negative bacteria has been developed by E. D. Bullard Co. Two-Way Sanitizer and Deodorant is reported 22 times more effective than Phenol and controls resistant strains of staphylococci which cause typhoid, dysentery food poisoning, colon infections, ringworm and athlete's foot. It is described as an excellent deodorant which chemically destroys odor producing bacteria, and reduces hazards of airborne infectious viruses. For use in such areas as dispensaries, meeting rooms, bathrooms and in vehicles.

Product will not damage materials in headgear, welding or sand blast hoods, winter liners, footwear, telephones or instruments. Skin and inhalation tests on humans and warm blooded animals indicate no irritation. Registered by the U. S. Department of Agriculture. Aerosol application.

DISPOSABLE SAFETY CLOTHING

(Use Key # 789 on Inquiry Card on page 1)

TEAR- AND FLAME-resistant clothing, priced to eliminate laundering, is offered by the Singer Glove Mfg. Co. as a solution to the cleaning problems created by the use of epoxy coatings and resins, and similar unwashable substances. The Tempora line consists of capes with sleeves and bib aprons and sleeves made of a lamination of cloth and fiber. The clothing is soft and pliable; it can be thrown away at less cost than the maintenance of other types of apparel, the company asserts.

DUST SAMPLER

(Use Key # 790 on Inquiry Card on page 1)

THIS bellows-type dust sampler offers a simple but efficient means of collecting dust samples from the air. The bellows of the Draeger Dust Sampler sucks dust-laden air through a membrane filter. The advantage of this type of filter is that it permits even separation and uniform distribution of the dust particles. Particles are deposited in airborne form and can be evaluated directly by physical and chemical methods.

The bellows (type 31, the same as is used on the Multi Gas Detector shown on page 65) is operated by one hand. Suction is obtained by the internal springs which expand the bellows after compression. Each stroke pumps a volume of 100.5 cc. at a reproducible rate. The filter holder screws to the suction socket on the intake side. Leather case holds the sampler and twelve numbered filter units. The unit is available from Draeger Oxygen Apparatus Corp.

VANE TYPE SPARK ARRESTOR

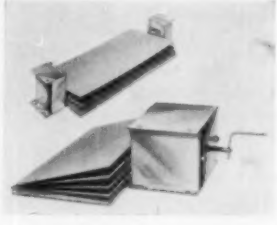
(Use Key # 791 on Inquiry Card on page 1)

A VANE TYPE spark arrestor, adaptable to mobile and stationary internal combustion engines, has been introduced by the Air-Maze Corp. Designed for reliability and long life, the unit has passed the U. S. Department of Agriculture, Forestry Service, test specifications. The Air-Maze arrestor employs a centrifugal action principle without the use of moving parts. As the exhaust stream flows through the unit, the stationary vane imparts a spinning action to the air flow. This rotary motion drives the heavy particles of hot carbon to the outside of the stream and into the spark trap. The straight flow action of the muffler places minimum back pressure on the engine. The trap can be cleaned by opening the cleaning port with the engine operating at idle speed.

STEEL SHEET SEPARATOR

(Use Key # 792 on Inquiry Card on page 1)

A NEW adjustable magnetic unit which separates and floats stacked sheets of steel, ranging in thickness from 32 gauge to 7 gauge, has been announced by Magnetool Div., Multifinish Mfg. Co. Designed to facilitate feeding of round, square or irregularly shaped sheets into presses, shears and similar production equipment, the unit reduces possibility of equipment damage due to multiple sheet feeding, and, according to the manufacturer, substantially lowers production time. With adjustable separators, stacked steel sheets of virtually any thickness are magnetized so they repel each other and separate, permitting machine operator to quickly and easily pick up one piece at a time. Pry marks and scratches on painted or polished surfaces are eliminated, and hazard or injury to workmen is lessened. The adjustable model is equipped with a simple hand crank for precision setting, and is enclosed in an all-welded stainless steel case which prevents loss of magnets or damage to adjusting mechanism.



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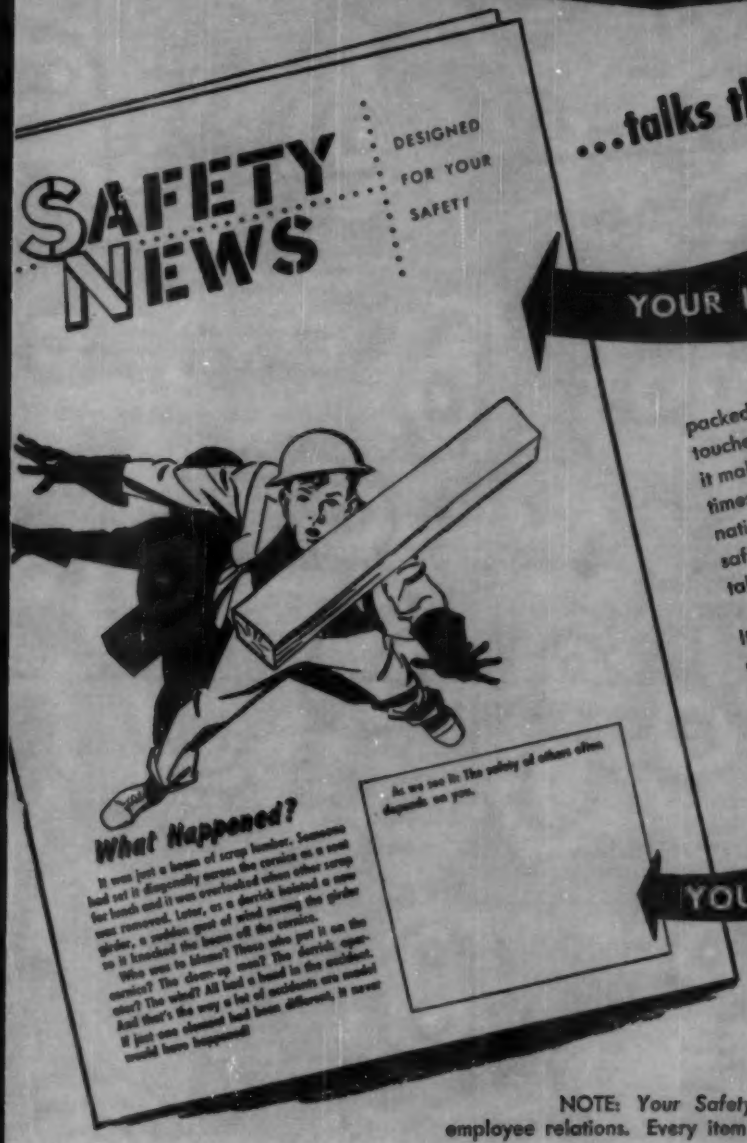

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It gives the employer the advantages of personal contact . . . saves time and expense. One "lost time" accident prevented . . . more than pays for the yearly cost! Try it . . . it works!

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NOTE: *Your Safety News* is designed to promote better employer-employee relations. Every item is carefully weighed and tailored to this viewpoint!

INSIDE PAGES
(Pages 2 and 3)

THOUGHTLESSNESS IS A THIEF
He'll steal his way into what you're doing, distract your attention and walk off with a finger, arm, eye or foot. Thoughtlessness takes many forms: it may be daydreaming, or worry about some personal problem, or just plain inattention. Anything that distracts you, especially around machinery, is a thief of your personal safety.
PLAYFULNESS IS A PIRATE
He is a deceptive rascal. His hi-jinks may put him in the spotlight, but his practical jokes and showing-off often result in serious bodily injury and even death. And note this: he, himself, has lost a leg! As so often happens, horseplay can boomerang and the practical joker gets hurt too!
AN INTIMATE LOOK AT FOUR VILLAINS
SAFETY LAZINESS IS A SIMON LEGREE
If you are lazy about safety rules, then accidents will have the whip hand. We are safety-lazy when we don't bother to use mechanical guards, to take time to get the right tools for the job, to wear protective equipment such as goggles, hard hats, safety shoes, respirators, gloves, etc. Yes, Simon Legree has a whole pack of accident hounds to trail you.
HAZARDOUS METHODS ARE A HOLD-UP MAN
This villain, unsafe work habits, likes to lie in ambush for the unwary. But how do we fall into bad working habits? It may be by trying to cut corners, by wanting to keep to the old way of doing things, or by over-confidence. It's hard for anyone to believe that an accident can happen to him. It's easier to make excuses to ourselves for ignoring safety rules, but all-in-only lead us up a blind alley with an accident waiting in ambush.
What You Should Know About Carbon Monoxide
This is a picture of carbon monoxide gas!
That's right, you can't see it. It's odorless, non-irritating, tasteless, practically odorless, but also deadly.
Here are the symptoms of carbon monoxide poisoning: First, a tight feeling across the forehead, followed by headache, throbbing temples, weariness, weakness, dizziness, nausea, loss of muscular control, increased pulse and breathing; BUT if the concentration of the poison gas is high, there may be loss of consciousness without these warning signals.
Just a few breaths of air containing 1% carbon monoxide can be fatal . . . so can one part of carbon monoxide in a thousand parts of air when breathed for 90 minutes.
It is possible for carbon monoxide to leak inside of a car if there is a loose exhaust pipe or manifold connection, blown-out cylinder gasket, cracked exhaust manifold, or leaky muffler. Play it safe.
1. Be sure your muffler and exhaust are in good condition (they can leak long before they become noisy).
2. Always keep a car window open, even a little, for fresh air.
Two Excellent Reasons
For Wearing Safety Shoes

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Model shown here is actual size, holds tools up to 1¼" in diameter.

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(For details, use Key # T-16 on card on page 1)

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1. Siver, R.H.: Current Medical Digest, Vol. XXI, September 1954.

2. Weekes, D.J.: New York State Journal of Medicine, Vol. 58, August 1958.

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